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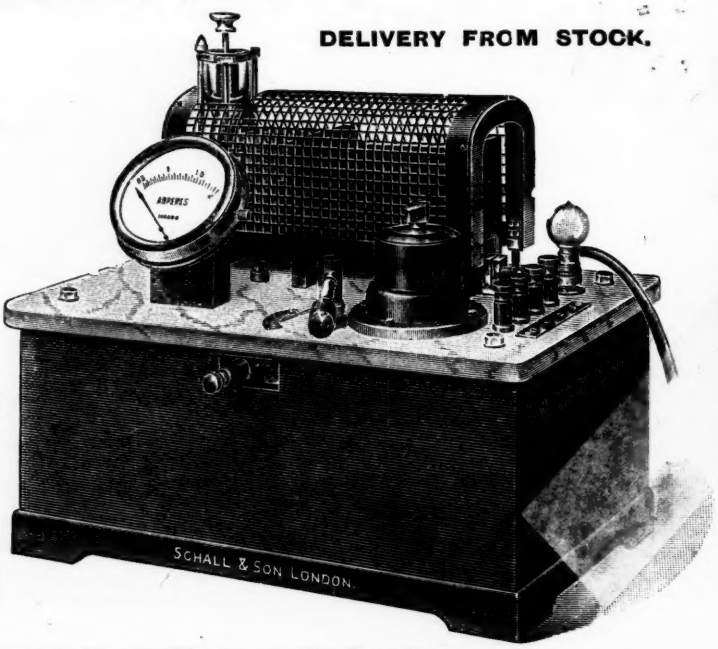

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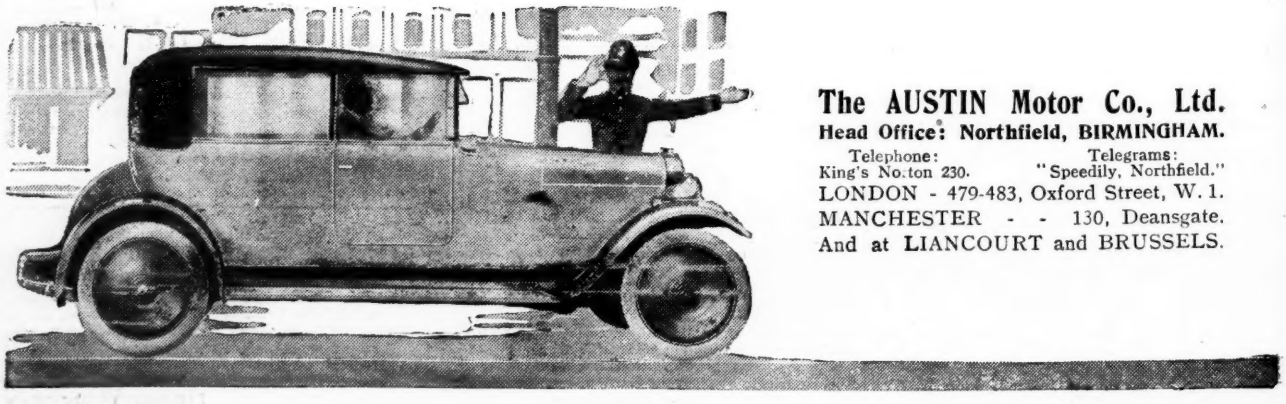

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FIFTY years ago specialists were composed of a body of men who had been carried by their scientific bias to limit their practical work, as far as possible, but rarely completely, to medicine, surgery, or midwifery; and I venture to think that men who shot over the rough before attempting to bring down driven partridges and rocketing pheasants made specialists who had a wider outlook and greater power of practical deduction than would have been the case had they been fed on high game from the cradle. Yet, with the tremendous and rapidly accumulating knowledge that came like an avalanche at the end of the Victorian era, and has continued ever since, it became inevitable that, unless the brain of the practitioner of medicine expanded proportionately, some must devote themselves to narrow issues in order to advance knowledge along special lines and to render themselves available for consultation on certain points. But there has been one evil in the tendency to the ultra-specialism of to-day—a tendency which I am glad to believe is not likely to go further—and it is that, driven by the force of circumstances, and also no doubt in obedience to the dictates of professional etiquette, men have attached themselves too rigorously to their own little bit of anatomical territory, and have not dared to take into consideration what may be called the Correlation of Function. That an eye is an eye, and a tooth is a tooth, is not the whole truth, though the refinements of specialism have almost made it appear so. An eye functions on behalf of the body; a tooth, likewise, serves and is served by the whole organism.

I hope I have expressed myself clearly; if so, it will be understood how it has come about that some of us have been forced to look beyond the narrow confines of our special region for a solution of our many difficulties, and I do not think I am wrong in advising everybody, whether he be a general practitioner or specialist, to remember that not only the structure but also the function of every part of the body is in close correlation with the rest. I believe, if this truth be held in the forefront, our work becomes more interesting and more capable of improvement, for it must be clear to all general practitioners, with the splendid example of men like Sir James Mackenzie in front of them, that to each a scientific career of discovery lies at hand, especially, as that great physician has said, in regard to beginnings of disease. And this is essentially true in regard to the subject of the ductless glands: the shadow of their influence is over all; every patient you see has her metabolism reflected in her system of ductless glands.

It may be asked how I, a surgeon, came to be specially interested in the organs of internal secretion. May I now justify what I dare say some have considered nothing more than a useful hobby, and at the same time say that all surgeons should be as conversant with physiology as with anatomy?

It is hard to understand the difficulties that others have faced, but I feel sure my own difficulties represent a common picture. Had I been orthodox I should have kept my eyes on the pelvis and not have looked outside for an explanation of the function of menstruation and other difficult problems with which my speciality has so long been burdened. Nevertheless I have often been handicapped, partly for the want of certain knowledge that would bear on the subject, but even more because I have felt that what was still looked upon as a primary process might really be secondary, could we go back to the beginning. It is still a debatable point, for instance, whether in many definite cases of mental disease, such as dementia praecox, the primary lesion is in the brain, or whether it is a lesion in the genitalia or elsewhere that produces the mental disturbance. Who is to decide if it be not the man who sees the early phases of these complicated conditions?

Once we grasp the fact that, as Weismann, Ray Lankester, and others have insisted, the individual exists to perpetuate the species, it is not difficult to realize that the metabolic factors concerned in reproduction are the same as those related to the individual metabolism. In other words, as I have stated elsewhere, the individual metabolism is the reproductive metabolism. It follows, therefore, that the ductless glands which regulate the individual metabolism concern equally the reproductive. So it is that we must seek in the metabolism of the mother—or hostess as we may call her—and in the regulation of her own metabolism, the factors that are most closely concerned in the preparation for and performance of reproduction. Moreover, closely linked to the individual and reproductive processes is the mind of the hostess; its normality is dependent on the integrity of the internal secretory organs and the metabolism; and what obtains physiologically is emphasized pathologically.

The ductless glands are concerned, then, not only in such gross manifestations as disorders of the reproductive system and of the characteristics of sex, but also in the more elusive disorders of the emotions—that is, of the mind. There is a wide field of study for those who see the beginnings of these disturbances, and it will make the study more interesting and more instructive, and certainly more complete, if it be remembered that the beginning of a disorder of an organ of internal secretion is shown in triplicate, as it were—in the mind, in the body, and in the reproductive system, all inseparably linked together.

What, then, do we know of the connexion between the ductless glands and the reproductive system? There is much left for us to discover. Most of our information is based on the results of animal experiments and on pathological investigations; and I propose to relate some of the more important facts obtained in the laboratories, and then indicate how these facts may be turned to use in practice.

WHAT IS A WOMAN, AND WHY IS SHE NOT A MAN?

This is the first point of interest that presents itself in a consideration of the genital functions. We ask ourselves whether the organs of internal secretion have any influence in this respect, and in reaching our present physiological knowledge on the subject we have worked backwards: we have discovered certain facts in regard to pathological conditions, and we now know that what is seen as an abnormality represents a disturbance of normal physiological processes.

Further advances in our knowledge have made it more and more clear that sex differences are pronounced. I dare say a good many of you know that I hold strong views in regard to the functions of woman, and that I look upon any divergence, sociological or otherwise, as abnormal.

I have spoken of the triplication of effects, and in considering the question of the differences between a man and a woman we find that these differences exist in the ductless glands, in the metabolism, and in the mental processes. I do not propose to consider the matter in detail, for I have often done so in other publications; but I will call attention to those remarkable instances in which a woman is or becomes masculine in her secondary characteristics, and males feminine. This is seen in the congenital abnormality known as partial hermaphroditism, and in acquired lesions of the pituitary and suprarenal glands.

Partial hermaphroditism is a very curious and interesting state. I have been fortunate enough to have under my close observation one of the three or four authentic cases of so-called "true hermaphroditism." There is no such thing in the higher animals as true hermaphroditism, although this is seen low down in the scale of evolution. But in the few cases of this type of hermaphroditism, so called, in Man, better known as partial glandular hermaphroditism, we have found what are known as ovitestes—that is to say, the gonads are composed of both ovarian and testicular elements. In my case the patient commenced life as a girl, and menstruated for a year or two regularly. Then menstruation stopped, she grew a moustache and much hair in other parts of the body, and the voice became bass. Removal of the genital organs caused a return to femininity, with slight symptoms of the artificial menopause. The other form of partial hermaphroditism, known as tubular partial hermaphroditism,

is not uncommon. In these cases the gonads are usually testicular in structure, whereas the secondary characteristics are invariably those of the opposite sex, and the external genitals most commonly conform with the secondary characteristics. I have seen a beautiful girl, as was thought, whose gonads were testes.

In passing I must make allusion to the practical side of these conditions. It has usually been taught that, owing to the frequency with which the gonad is testicular, the subject from childhood should be brought up as a boy. With the best will in the world it is impossible to suspect or to know in a majority of these cases the nature of the gonad, unless an operation be performed and part of the genital gland removed. As a result, most partial hermaphrodites reach adult life as girls, and look the part. I have known a case in which a hermaphrodite of this type was married. Legally, that marriage could have been annulled, and I am waiting with interest for the time when one of these abnormal individuals will be entitled, in accordance with the structure of the gonad, to be considered the heir as the eldest son. I am prepared to argue that the structure of the gonad is not necessarily the criterion of sex. I believe it would be better at once to put the question on a proper legal footing. I call your attention to this important matter because any one may come across such a case at any time.

The most outstanding of the acquired lesions producing masculinity in women are hyperplasia or neoplasia of the suprarenal cortex. I can best describe the changes which occur in previously normal women by repeating the description of a French writer: The voice, which was previously soprano, became like that of a lieutenant, and the woman, previously gentle and amenable, became rough and aggressive. Practically all these persons develop excellent beards, and no doubt in the days gone by the bearded woman of the country fair was one who had a lesion in her suprarenal cortex. If further confirmatory pathological evidence were required, we have it in the cases of so-called infant Hercules—boys with suprarenal tumours who are often fully-grown men at the age of five or six; that is to say, excessive masculinity is produced in males suffering with lesions in this and certain other organs. My friend and colleague, Professor Ernest Glynn, has written a classical paper on the pathological aspect of such lesions in the suprarenals.

Again, if a woman have acromegaly, which we believe is the result of hyperplasia or neoplasia in the anterior lobe of the pituitary, she shows well marked masculine traits. Her voice becomes deep, her skin coarse, and her metabolism, especially in regard to the deposition of calcareous salts, closely akin to that of man. In these women there is amenorrhoea, simply and solely because they have become masculine, and not because of the lesion in the pituitary as such; indeed, hyperplasia in the anterior lobe should, if it did not produce masculinity, stimulate activity in the genitalia. It is these facts which give rise to the apparent paradox that destructive lesions, as well as hyperplastic lesions in the anterior lobe of the pituitary, produce amenorrhoea. It is interesting to note that acromegaly in the male is often associated with increased sexuality, whereas destructive lesions in the same region in men produce impotence and a change towards femininity as far as possible in the male—that is to say, the skin becomes soft, hair on the face falls out, and the fingers become fine and tapering.

Another interesting sex-characteristic or distinction in regard to the pituitary is of considerable medico-legal importance, although I do not think it has yet found its way into the textbooks on jurisprudence. It is that once a woman has a child the pituitary becomes and remains larger than normal; indeed the average size of the pituitary of multiparous women is considerably greater than the average size of that of men. Moreover, the staining reactions of the cells of the pars anterior are much altered, so much so that an expert in the histology of the pituitary gland cannot fail to recognise the effect and cause.

The subject of the sex-characteristics and the ductless glands is so extensive, being related not only to the glands mentioned but also to the pineal, the thyroid and to some extent to the gonads, that I fear I cannot discuss it further. I have brought forward these details to show that my bias on the subject of the differences in the two sexes is produced by weight of scientific evidence.

ASSOCIATED DISTURBANCES IN THE DUCTLESS GLANDS AND GENITAL ORGANS.

We come now to the gynaecological disturbances due to the correlations of internal secretions and their disorders.

The Ovaries.

In the first place, what have we learned from experiments on animals regarding the place of the ovary in the system of ductless glands? My deductions lead me to look on the ovary as a connecting link in the chain—a link that is only temporarily employed during the reproductive period; that is to say, the metabolism of boys and girls is probably not greatly different, nor is that of women after the menopause much different from that of men in late life. During the reproductive period, however, a woman is called upon for great metabolic effort in order that she may be able to nourish her child in the womb, and, after parturition, at the breast; consequently, the ovary is concerned in keeping the other organs of internal secretion and the resultant metabolism in touch with the genital system and its needs. In my mind menstruation represents merely the monthly excretion of substances that would be concerned in the building up of a child were the woman pregnant. For this reason a woman usually has amenorrhoea for, at any rate, five months of lactation, and should she nurse for more than nine months her metabolism is apt to be drained if she be menstruating at the same time; she suffers, in other words, with the symptoms of superlactation.

What, then, happens at the menopause? Nature is gentle in her methods, and woman is usually let down, so to speak, by degrees. A majority of women suffer with flushes and other disturbances, many of them due to instability in the vasomotor system.

Experiments on animals have shown that if the ovaries be removed changes are produced in the other ductless glands, especially in the pituitary and thyroid. It appears, therefore, that the menopausal disturbances are due to an upheaval of the internal secretory system. The symptoms usually indicate the line of treatment. Many women after the menopause show an unusual degree of atrophy in the thyroid, coincidental with ovarian atrophy, with the result well known to all; not only are the reproductive organs concerned, but also the ductless gland system, and the mind—the patient becomes depressed and melancholy. The obvious treatment is the administration of thyroid extract. This specific example is interesting, for it shows clearly not only the triplication of effects, but also how these effects are produced by an easily recognizable lesion. It has been shown recently by Mott that in all such cases the cells of the brain and nervous system undergo definite changes.

Before leaving the problems connected with the ovaries, I wish to call attention to a matter that, in this country at any rate, has been strangely neglected: I refer to the transplantation of ovarian tissue, a procedure based on physiological experiments. All who have studied the question in animals have found that if the ovaries be removed and some ovarian tissue transplanted the uterus, a section of which is taken at the time when the ovaries are removed, does not undergo atrophy as is the case when the ovaries are removed and no graft is made. We know, too, that in rodents it is the interstitial cells and not the follicles that are important in respect to the integrity of the uterus. The ovaries of rodents, in contrast with the human ovary, contain much of this interstitial tissue, and this is probably the reason why transplantation is almost invariably successful in the lower animals and not constantly so in women. After an ovarian graft has been made, the uterus is an important indicator, for if this organ remains normal no changes are to be observed in the other organs of internal secretion, such as occur after oöphorectomy alone; in other words, an autogenous ovarian graft may be as effective as undisturbed normal ovarian tissue, except, of course, in regard to reproduction. It is, however, important to remember that the best—indeed, the only satisfactory—results are obtained with autogenous grafts, and that a graft taken from one woman's ovary and placed in the muscles of another woman rarely grows. We are only now learning how remarkably individual people are in regard to their blood and other tissues. I have not time to discuss this interesting subject which may account for selective sterility and many other hitherto obscure phenomena.

Unfortunately, as I think, many gynaecologists in this

and in other countries have not much respect for the ovaries in the presence of other pelvic lesions; should they be operating for pyosalpinges, for instance, they invariably remove all the ovarian tissue. I know of a sad case of a young girl who had both ovaries removed for dysmenorrhœa. I can hardly control my words in stating what I think of such an unscientific procedure. This girl has been in an asylum for more than twenty years. No doubt she had a neuropathic tendency. But I doubt if she would ever have broken down if her ovarian tissue had been left alone. There is no reason for removing the whole of the ovarian tissue in any woman, unless the lesion be malignant. In malignant disease the lesser evil is chosen, in view of the fact that we have therapeutical measures which can lessen to some extent the symptoms of the artificial menopause, and probably prevent such a disaster as that of which I have just spoken.

I never leave an ovary in the pelvis if infection be present. I remove all the diseased structures, and, as the ovary can play no further part in reproduction because the tubes have been destroyed so far as their function is concerned, I transplant a piece of healthy, or even infected ovarian tissue, into the muscles of the abdominal wall or some other vascular site. I think I have cause to be satisfied with this procedure, for many of the patients have menstruated, although part of the uterus has been removed in most of the cases; so far as I know at present, no patient has complained of pronounced menopausal symptoms. There may be difficulty in deciding this point. We must not pay attention to agreement with a leading question; but, if the patient volunteers the statement that she is sorely troubled with hot flushes, I would immediately consider that she had menopausal symptoms. Nevertheless, even this is not an absolute indication that the ovarian transplantation has failed. I have in mind at the moment the cases of two private patients, from both of whom I removed double ovarian abscesses with pyosalpinges, and in whom I implanted infected ovarian grafts. Some two or three months subsequently to the operation they complained of discomfort and flushing, yet both of them menstruated shortly afterwards with fair regularity, and the disturbing symptoms ceased. In these cases, as in all in which complaint of such symptoms is made, I administer ovarian and thyroid extracts, which are discontinued when the patient recommences to menstruate.

There are other uses for ovarian transplantation of which I have had satisfactory experiences, but time will not allow of my giving the facts in detail. Transplantation of ovarian tissue is no doubt a complicated surgical problem, and deserves much further consideration. I hope one day to make use of an opportunity such as the present to bring forward a collection of these cases of ovarian transplantation, with which I and those who assist me always endeavour to keep in touch.

I now come to the consideration of primary disorders of the ductless glands which affect the genital functions.

Through the courtesy of many friends I have had an unusual opportunity of seeing a large number of these cases. Generally the patient has complained of amenorrhœa and sterility. It is interesting to speculate as to what happened to all these patients in the days gone by. I notice that in the textbooks of twenty years ago, even in some of those of to-day, obesity, without qualification, occupies a considerable importance in regard to amenorrhœa. I do not say that amenorrhœa and sterility cannot be produced in animals by overfeeding, but, after all, obesity in these circumstances is probably a reflection in the organs of internal secretion of some disturbance in metabolism. It is interesting to note that the two disorders associated with obesity and amenorrhœa, that are seen every day in practice, are connected with the pituitary and thyroid glands. With any considerable insufficiency in these organs the carbohydrate tolerance increases, and the patient becomes obese, as not infrequently happens after the menopause.

I shall now consider these derangements as primary lesions in the ductless gland concerned. I have already considered the other side of the picture.

The Pituitary.

This wonderful little organ, about which so much has been written of recent years, has, as we have already seen, an important influence on sex-characterization and on the reproductive functions. I wish now to discuss the question of insufficiency of its secretion or secretions, and in so doing I shall first call attention to certain important physiological observations which have helped us greatly in forming clinical conclusions; and in these observations you will recognize at once the difference between scientific deduction and guessing.

In animals and birds periodic variations in pituitary activity are normal, even as we have seen variations are normal in connexion with reproduction in women. As I have said, in such cases it is usual to find adiposity when the pituitary is inactive; I shall mention certain apparent exceptions directly.

It has been shown, and I myself have observed, that during hibernation in animals the pituitary gland undergoes remarkable retrogression, which cannot be mistaken by those conversant with the normal active organ. In the hedgehog, which I have studied, there is a remarkable deposition of fat throughout the tissues of the body, most evident perhaps in the subcutaneous tissues. In such circumstances this small animal has a coat of fat as much as one and a half inches in thickness. No doubt this protects the creature from the winter cold and provides nutriment. Associated with this, as I have said, is atrophy of the pituitary.

Fat deposition and somnolence, so well seen in the hibernating animals, are the chief characteristics of acquired insufficiency in the pituitary. It has been suggested, and is indeed probable, that the other organs of internal secretion also undergo some retrogression in hibernation. I have found, too, that the pituitary of the broody hen shows similar changes, but in this case fat does not appear usually to be deposited, perhaps because food is still to be obtained.

Now what is normal in animals may be pathological in Man. I shall not refer here to the wonderful clinical results which have been obtained with the extract of the posterior lobe of the pituitary. They are well known; the subject is one in which I have been specially interested, and it is summarized in my book on the pituitary.

Experiments on animals, apart from the histological investigations to which reference has just been made, have afforded information of the highest importance in regard to the interpretation to be placed on corresponding clinical signs and symptoms. Unfortunately, but few successful series of cases have been published in which operations on the pituitaries of animals have been performed. To Paulesco belongs the credit of being the pioneer in this matter, although he was by no means the first to attempt such experiments. I shall briefly summarize the results of lesions experimentally produced on the pituitary, which are now accepted as being correct; and I may say the conclusions formed from the experiments of Paulesco, Cushing, and myself differ in only one or two important respects.

It is known that extirpation of the whole pituitary is inconsistent with life. The removal of large portions of the pars anterior may lead to the death of the animal, but if it does not do so, intense genital atrophy ensues, and in young animals general stunting. Cushing and Paulesco also observed obesity in these circumstances, but, on the other hand, I did not observe this result of carbohydrate tolerance. Removal of the posterior lobe causes no symptoms. There is a divergence of opinion concerning the results of compression of the stalk of the pituitary: Paulesco considered this to be a fatal operation; Cushing believed it produced effects similar to those following removal of the whole pituitary with immediate transplantation.

In my experiments the operation of compression of the stalk, whereby the blood supply to the pituitary is cut off, was found to lead to the syndrome of dystrophia adiposogenitalis—somnolence, obesity, and total atrophy of the genitalia—an exact counterpart of the disease in Man. I may add that Cushing has privately conceded the correctness of my experiments and deductions, as opposed to his own and those of Paulesco. Cushing is only concerned with the truth, and his work on the various aspects of the pituitary activity is an imperishable monument to his genius.

I have conducted a few experiments whereby an artificial tumour was introduced into the cranial cavity in the neighbourhood of the pituitary. When there was pressure on the stalk symptoms of dystrophia adiposogenitalis were

produced; when irritation from the proximity of the tumour was caused there was glycosuria and emaciation.

We occasionally see in Man congenital insufficiency of the pituitary, in which there is genital inactivity, often associated with poor somatic development. I have seen several cases of this sort. When there is general somatic underdevelopment, that in the pituitary may simply be part of universal insufficiency; but in other cases the patient may be finely developed, yet have inactive functions. I remember an interesting example of this. The patient was about 18 years of age and had not menstruated. She was beautifully developed, but had an infantile uterus. A radiograph showed the sella turcica to be one-third of the normal average size. She was fed on pituitary extract for a long time, and at the age of 22 years, sometime after discontinuing treatment, she commenced to menstruate regularly and freely.

In acquired lesions of the pituitary there is usually enlargement of the sella turcica, and I have mentioned radiography of this region. This is valuable when carried out by a skilled radiographer, and I am indebted to my colleague, Mr. Thurstan Holland, for the trouble he has so often taken and the skill with which he has helped me in many difficult cases. It must not be forgotten that hemianopia, which may go on to complete blindness, occurs with enlargements of the pituitary fossa, and headache may be persistent and severe. But it will be remembered that pressure on the stalk can be experimentally produced, and that this lesion causes dystrophia adiposogenitalis. It is interesting, therefore, to note that in Man all the symptoms of dystrophia adiposogenitalis, without expansion of the sella turcica, may be caused by a suprasellar tumour. In such cases a definite diagnosis can be made by the symptoms and the absence of enlargement of the sella turcica on radiographic examination.

There are other methods of investigation which may help. I have spoken of carbohydrate tolerance, by which is meant the power to retain carbohydrates and deposit fat in the tissues instead of the ability to excrete carbohydrates in excess of the usual limit. The normal person is able to take about 110 grams of dextrose without the appearance of glycosuria. The power to retain more than about 150 grams may be considered pathological. The carbohydrate tolerance, then, of a patient may be measured, and it will be found to be raised in cases of pituitary insufficiency. I have known a patient swallow—with difficulty be it admitted—500 grams of sugar without subsequently passing sugar in the urine.

Then, again, we have what is known as the "thermic reaction." All cases of severe pituitary insufficiency show a subnormal temperature, which may be raised by the intramuscular injection of an extract of the anterior lobe. I cannot affirm, however, that this reaction is always striking. Moreover, the blood pressure is often very low, but can be raised with an extract of the posterior lobe—that is, by infundibulin injected intramuscularly. But, of course, this alone is not a specific test, as infundibulin administered intramuscularly will always raise a reduced blood pressure.

With regard to serious lesions of the pituitary and their effects on the genitalia, treatment is not always satisfactory. If there be a cyst in the pars anterior it may be safely evacuated, and the patient may recover completely. In other cases, feeding with whole-gland pituitary extract may give good results, especially if associated with operation.

Our knowledge of the minor disorders of the pituitary is less definite, because the conditions do not lend themselves so well to experimentation as do the grosser lesions. We have, however, the important facts of the physiological states of hibernation in animals and brooding in birds to help us, for we see in them a temporary phase of insufficiency, and we are led to realize that similar conditions may be found in Man. I have already mentioned that the opposite state—that of hyperplasia—occurs in women during gestation. Furthermore, experiment has shown that changes occur in the pituitary as the result of inoculations with bacteria. I would call special attention to this point in regard to the pituitary, without considering the coincidental changes that are seen in the suprarenals and elsewhere in the ductless gland system, for I feel sure many of the minor insufficiencies seen in practice may be the immediate sequel of bacterial infections. The lesions may be slight and curable. It is not always possible, however, to get a definite history, but "a cold" is frequently mentioned as the starting point of secondary amenorrhoea.

When the fact that the organ chiefly at fault is the pituitary can be established, then treatment is, I believe, fairly satisfactory. I have seen patients in whom regular menstruation has been induced by pituitary feeding.

The Thyroid.

As intimate as the relation of the pituitary to the genital functions is the association between the thyroid gland and the genitalia. Here again we are to a great extent indebted to experimental research, but no less to pathological investigations; moreover, clinical observers have had a good chance to advance our knowledge of the thyroid, for this organ is accessible to ordinary physical examination.

A matter of considerable interest has come to light as the result of experimental extirpation of the thyroid; in rodents, such as the rabbit, removal of this gland is not only compatible with continued existence, but appears hardly to disturb the animal. Three reasons may be suggested for this comparative immunity to the effect of thyroidectomy, as opposed to the disastrous effects of the same operation in carnivora. First, it is known that a meat diet makes a greater call than a purely herbivorous on the activity of the thyroid. Second, in herbivorous animals the parathyroids usually escape removal with the thyroid itself, whereas in carnivorous animals it is not always possible to conserve all the parathyroids, which are closely adherent to the thyroid. Third, the thyroid is not so active in herbivorous animals as in carnivorous animals, perhaps primarily because of the diet, but also because the ovarian interstitial tissue in these mammals is more in evidence than in the carnivores.

Man being omnivorous should come half way between the two orders in regard to thyroid activity, if it were purely a question of diet; but I do not think it is. In Man we have seen, there is little interstitial ovarian tissue, which, from a genital point of view, means a very active thyroid. Extirpation of the thyroid in animals is followed by a considerable degree of atrophy of the uterus, but strangely enough ovarian retrogression is not seen.

As with the removal of the ovaries and also with partial removal of the pituitary, thyroidectomy is followed by definite changes in the other ductless glands, and these changes are particularly noticeable in the pituitary, which undergoes hyperplasia in all parts.

It is a too common observation in the experience of every one for me to do more than recall the curious enlargement often seen in girls during menstruation; but I believe that it is important to bear in mind that this enlargement may exist in two forms. It is either a primary lesion in the thyroid which persists between the monthly periods, in which case menstruation is profuse; or it may be due to a temporary state of hyperplasia, when the ovaries are not very active and supplementary action is required to establish menstruation. In the last-named circumstances menstruation is usually scanty and painful.

The treatment, of course, is obvious; in the first type of case attempts must be made to reduce thyroid activity, if symptoms are sufficient to warrant interference, because I believe exophthalmic goitre may supervene. Radiations of *x*-rays carefully managed appear to be a valuable method of treatment. I have also found intramuscular injections of infundibulin and the administration of calcium salts efficient in many cases. In the second type there is an attempt, as I have said, on the part of the thyroid to supplement ovarian insufficiency; consequently, we must treat the case by the administration of thyroid and ovarian extracts. I believe ovarian extract alone is useless, and this, I think, is the general experience of most clinicians; but I have seen excellent results when whole ovary extract is given in conjunction with thyroid extract. We must remember that in the blood stream the internal secretions meet and activate, or inhibit.

In myxoedema the most wonderful results are obtained with the administration of thyroid extract. A melancholic, obese, non-menstruating sterile woman, becomes happy, is reduced in weight, menstruates and may even conceive. An illustration again of the triplication of effects. But it is, after all, the minor degrees of insufficiency in organs of internal secretion that escape notice while they are still easy to treat, and I beg you to

be on the look-out for the protean signs and symptoms that are discernible very early.

I have not time to deal with insufficiencies of the other ductless glands; nor have I time to mention some of these glands at all. You will find in my book, *The Sex Complex*, especially in the new edition about to be issued, a more complete picture. I shall be amply satisfied if I have been lucid in this hasty sketch with which I have sought to attract your attention to the triplication of effects—in the mind, in the soma, and in the reproductive organs—which forms such striking evidence of what I have called the Correlation of Function.

THE COMMONER COMPLICATIONS OF BACILLARY DYSENTERY IN MILITARY PRACTICE.

BY

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THE complications of bacillary dysentery have received scant attention from medical writers in the past, but since the recent campaigns in the East many symptoms, apparently due to the absorption of the toxins of the *Bacillus dysenteriae*, have occurred with considerable frequency in military practice.

Arthritis in Bacillary Dysentery.

Of these complications, monarthritis, or more generally polyarthritis, have been frequently noted during the Egyptian and Palestine campaigns.

That such an arthritis may supervene during the course of a bacillary dysentery, even of a mild type and untreated by any specific serum, and that the joint disintegration so produced may persist for a long time—even a year or more—and may result in permanent disability, has long been recognized, though in many epidemics in India and elsewhere such occurrences have been rare. Davidson,[1] who wrote mainly from Indian experiences, remarked upon the tolerable frequency of arthritis in dysentery unaccompanied by any involvement of the endocardium. This, he noted, may be ushered in by pyrexia, either during the acute stage of the disease, or when, apparently, the bowel condition has once more become normal. In the Döberitz epidemic in Germany, in 1900, arthritis supervened in 3.75 per cent. of all cases, and the condition persisted from four days to four months. It is significant that, writing in 1913, Sir Leonard Rogers[2] mentions only a single case of arthritis of an obstinate character as having occurred to his knowledge during the course of such an epidemic in India.

In a bacillary epidemic of a more virulent character, which visited the Fiji Islands in 1897, I was informed by Daniels that fully 10 per cent. of the patients developed arthritis, whilst in 1910, during a study of 300 cases in the same colony, I did not see a single one.

During the war on the eastern European front 7 cases of arthritis out of a series of 600 have been reported. A streptococcus is said to have been isolated from the blood of one case, and the joint symptoms were regarded therefore as a result of streptococcal septicaemia secondary to the bacillary infection.

Arthritis occurring in the course of amoebic dysentery appears to be very rare. I have only been able to find a record of one case.

During the first nine months of 1916 a number of cases of arthritis occurred amongst patients suffering from bacillary dysentery in Egypt. The bacillus responsible was the Shiga bacillus in all cases which could be properly investigated, and it is noteworthy that no cases of arthritis were observed at the same time in Flexner-Y infections. Though the latter bacillus was commonly met with amongst the numerous cases of bacillary dysentery in Turks at the Prisoners of War Hospital, Heliopolis, Cairo, yet no instances of joint involvement were noted amongst these patients.

Arthritis in Cases Untreated by Serum.

The majority of the cases of arthritis encountered during the course of bacillary dysentery have been those previously injected with antidysenteric serum, though arthritis was observed twice in cases untreated by serum of any kind.

In one such case the right knee alone was affected, and there was a large effusion into the subcrural pouch, which was very gradually absorbed. In the other cases all joints were affected, including the temporo-maxillary and the interphalangeal; there was also a uniform swelling of the right parotid gland. Arthritic symptoms in both instances supervened during convalescence from dysentery and while the stools were completely facculent.

Arthritis occurring Subsequent to the Administration of Antidysenteric Serum.

According to my personal observation, arthritis occurring in a patient subsequent to the administration of antidysenteric serum, either by the subcutaneous or the intravenous route, can be classified under two headings:

(*a*) Fugitive polyarthritis, with or without joint effusions, occurring during the course of "serum sickness."

(*b*) Intractable polyarthritis, with effusion into joints and wasting of adjoining muscles, apparently due to absorption of dysenteric toxins.

(*a*) *The Fugitive Form.*—Eleven out of 29 acute cases of bacillary dysentery injected intravenously with doses of from 30 to 40 c.cm. of antidysenteric serum developed a fugitive polyarthritis seven to twelve days after the injection; that is to say, the arthritis was ushered in with pyrexia, urticaria, general malaise, and hyperaesthesia of the muscles. This condition lasted as a general rule for two to three days and then cleared up, and might possibly be ascribed to the elimination of foreign proteins originally contained in the serum injected.

(*b*) *The Intractable Form.*—Eight out of 29 cases (or 27 per cent.) developed joint symptoms, often of a very intractable nature, with intra-articular effusions. This came on generally from the sixth to the tenth day after injection of serum. This is a much higher percentage of incidence of arthritis than in the series from France and Mesopotamia recently described by Klein[3] and Waller[4]; the latter reported 12.4 per cent. of arthritis as occurring in his cases treated by serum.

The effusions in my cases took place with surprising rapidity, accompanied by acute pain and a rise of temperature to 102° to 103° F., especially when the knee-joint was involved. The one death in this series was preceded by profuse watery diarrhoea with a septic pyrexia ending finally in collapse.

In the knee-joint the effusion took place into the subcrural pouch and, in less than twenty-four hours from the commencement, the joint cavities were distended to their utmost capacity and the superjacent skin was stretched and shiny. There were no signs of local inflammation such as hyperaemia of the adjacent tissues. In the interphalangeal joints the swelling occurred into the tissues immediately surrounding the articulations, thus giving the spindle-shaped appearance of rheumatoid arthritis.

In one case large sterile effusions took place into the substance of the gluteus maximus and latissimus dorsi muscles, and subsided very slowly so that the patient was incapacitated for six months. The stage of the disease at which the arthritis supervenes is of importance; in all the cases I observed, the arthritic symptoms commenced at a time when the intestinal condition had considerably improved—even, in some cases, when the stools had been apparently normal for a week or more. The effusion was straw-coloured and slightly viscid, sterile on culture and containing a considerable number of polymorph cells. According to Klein this fluid agglutinates the specific bacilli in high dilutions.

In all cases observed, and especially in several cases not included in the series quoted above, intermittent pyrexia persisted as long as the joint symptoms were in evidence. Another characteristic seems to be that the pain, or, in some cases, a sense of stiffness, appears to be more marked at night time or in the early mornings.

As bearing on the etiology it is important to note that in two cases previous arthritis of rheumatic or traumatic origin had occurred a year or more before the onset of dysentery; it therefore seems probable that previous joint injury may exert a very definite predisposing influence on the supervention of joint symptoms in a subject subsequently attacked by a bacillary dysentery.

The question now arises whether the brand of the serum employed played any active part in the causation of this particularly intractable form of polyarthritis. I think there can be no question that polyarthritis may occur during the course of bacillary dysentery, quite independently of any serum treatment, but may it not be that some substance in the brand of antidysenteric serum employed, such as a large proportion of toxic proteins, can exert a deciding influence on the production of joint effusions? There would appear to be, from the figures at my disposal, some grounds for such a supposition; for amongst my series of cases a polyarthritis occurred in 8 out of 29 injected with a certain brand of serum (that is, 27 per cent.), whereas in 335 convalescent and slight bacillary cases admitted to hospital during the same period, and who were not treated with serum of any kind, only one case of arthritis occurred.

In addition to this evidence, through the kindness of Lieut.-Colonel C. J. Martin, C.M.G., D.S.O., F.R.S., I have been able to obtain his statistics from an Australian General Hospital for comparison with my figures. The Australian statistics show the remarkable fact that 358 cases, from nearly all of whose stools the specific bacillus was isolated, were treated with large intravenous injections (100 c.cm. or more) of Lister Institute antidysenteric serum with apparently favourable results, and without the supervention of a single case of arthritis. Similarly, in 1910 I gave over one hundred consecutive intravenous injections of Lister Institute antidysenteric serum without the supervention of a single complication of this nature.

Infrequent Complications.

Iridocyclitis and *parotitis*, which have recently been noted.

The *iridocyclitis* occurred in two cases six weeks after the initial dysenteric attack; one patient suffered from arthritic symptoms, whilst the other did not.

Parotitis was observed in three cases presenting no obvious signs of oral sepsis. In one there was a unilateral and in the other two a uniform bilateral swelling of the parotid gland which appeared suddenly and disappeared almost as suddenly. In both cases the swelling of the parotid coincided with the development of the concomitant arthritis.

SUMMARY.

It is reasonable to suppose that there exists an idiopathic dysenteric arthritis due to the absorption of specific dysenteric toxins from the bowel wall and their excretion (as is known to be the case during the absorption of toxins of septic and gonorrhoeal origin) into the joint cavities.

In the same manner the arthritic symptoms occurring during the course of serum sickness may be justly regarded as representing an effort on the part of the organism to rid itself of toxins peculiar to horse serum; and it is possible that a particularly high percentage of these toxins, even when introduced in moderate doses into a subject already suffering from dysentery in which *per se* arthritis is not an infrequent complication, may not only determine the onset of the condition, but also the amount of disintegration of the joint thus produced.

REFERENCES.
[1] *Hygiene and Diseases of Warm Climates*, 1893. [2] *The Dysenteries*, p. 382. [3] *Lancet*, November 1st, 1919, pp. 775–778. [4] Ibid., pp. 778–780.

INSTINCT AND HYSTERIA.

BY

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THE springs of conduct are obscure and not to be discovered at a glance, but it seems likely that our actions can be traced back to a basis of psycho-physical dispositions, more or less modified by outside influences and by interaction between such dispositions themselves. The innate dispositions, when considered in their simplest manifestations, are known as the primary instincts. On analysis an instinct is found to consist of three elements—the cognitive or afferent, the affective or central, and the conative or efferent. McDougall describes a number of primary instincts, to each of which he assigns a primary emotion, which is the affective element of the instinct. He describes others in which the emotion, though doubtless present, has no name. From his list we select the following as having a bearing on our subject:

(*a*) The instinct of flight and the emotion of fear.
(*b*) The instinct of curiosity and the emotion of wonder.
(*c*) The instinct of pugnacity and the emotion of anger.
(*d*) The instincts of self-abasement or subjection, and self-assertion or display; of which the affective sides are the emotions of subjection and elation, or negative and positive self-feeling.
(*e*) The parental instinct and the tender emotion.
(*f*) The sex instinct.

When we watch the play of instincts we notice that their conative activity is directed to the attainment of pleasure, the elimination of painful feeling, and to the good of the individual or species; in other words, that the conation arising in the activity of an instinct is of a teleological or purposive nature. But this is not the same as to say that it is a conscious endeavour towards a foreseen end; for example, the salmon, surmounting the waterfall by a supreme effort, has not directly in view the good of its progeny. And many a man who all his life has held strong political views, imagining them to be founded on the dictates of pure reason, would be offended if it could be shown that his opinions are founded (as is often the case) on his instinct of pugnacity and the emotion of anger against those who hold opposite views. The action of running away under the impulse of fear might seem to be a consciously directed endeavour; but the other motor activities, such as rapidity of the heart's action and respiration, are equally part of the flight instinct, and are obviously not consciously directed.

Instinctive behaviour is sometimes extremely simple, at other times complicated to a high degree. The simpler forms are commonest among the lower animals, and the highest complications are found in man. As an example, the instinct of pugnacity when aroused may result in an attempt to hurt an opponent by a blow, or in the complex and long-lasting efforts involved in a lawsuit. An observer who was unacquainted with civilized man might find some difficulty in classifying under the same heading the conduct of the cock that flies at his enemy's head at sight, and that of the prosecutor in a lawsuit sitting for weeks in a court listening to speeches, conferring with counsel, and taking notes. A savage, also, whose notion of the sex instinct was limited to the sexual act, would be puzzled to account for the civilized young man writing verses "To Chloe, on finding her fan." But though man shows the highest degrees of complicated instinctive behaviour, in animals also the conative aspect of an instinct may be exceedingly complex. This is seen in the case of bees, spiders, birds, etc., in whom the parental instinct is greatly modified and complicated. Differences between the modifications of the instinctive behaviour of animals and man lie in the fact that the complicated conative disposition of animals is the same in different individuals and is transmitted unchanged to their descendants; whereas no two men act exactly in the same way under the influence of fear, anger, wonder, elation, and the rest, and complications are not transmitted as such. Though we can observe instinctive behaviour modified and complicated almost out of all recognition in both man and animals, the factors producing these modifications are somewhat obscure. That the intelligence may play a large part in the case of man is seen in such an instinct as curiosity, which is the mainspring of scientific research; but how birds were moved to build nests by the parental instinct, or how certain species of rats, moved by their flight instinct, adopted an aquatic life, and why these complications of originally simple conations were transmitted to their offspring, we do not know.

In the study of the etiology of certain functional disorders it has seemed that some advantage might be derived from considering the primary instincts. As is well known, mutism, paraplegias, paraesthesias, blindness, deafness, amnesia, etc., are common during the strain of battle. All these are disorders which incapacitate a man from service and cause his removal from a dangerous area to hospital and safety; in this way they serve the instinct of flight, which, like other instincts, is teleological or purposive in its conative aspects. It is surely not more remarkable that the flight instinct should make a man paraplegic than that the parental instinct should cause a bird to build a nest: or that the sex instinct should lead

Orlando to pin verses on to trees. At the first glance all these activities seem equally remote from the primitive, efferent function of the instinct; but they have in common the one fact that they advance the purpose of the instinct. This does not necessarily imply conscious endeavour to a foreseen end. When such endeavour is present we may (apart from malingering) get the phenomenon of the self-inflicted wound, which is an example of the intelligence usurping the entire conative functions of the instinct of flight.

This parallelism of the activities of the reasoned and unreasoned conations, producing in each case the same result (namely, illness), is a point that seems interesting to note, and can be matched in the play of other instincts besides that of flight.

In the study of the most common functional or "hysterical" troubles outside military life the instincts of self-abasement and self-assertion should be recalled.

Self-abasement, with its emotion of negative self-feeling or subjection, is evoked by failure in the primitive human occupations—war, love, reproduction—and by pain and fear. Its conative activity consists in crouching, cringing, or slinking attitudes of body, or (in the civilized) of mind. Its object seems to be the propitiation of a superior power or the eliciting of sympathy or pity; it is well seen in the whipped dog. An interesting human example was seen by the writer in the case of a Tamil marker who, being accidentally shot on the range by a soldier, fell on his knees and salaamed repeatedly to the man who had shot him. One does not often witness the bodily exhibition of the instinct among civilized people, though the mental equivalent is very common. If the instinct of self-abasement is successful in gaining the sympathy or consideration which is its object, it is liable to change in a curious way into the instinct of self-display. If the cringing dog is given a few words of encouragement it immediately starts exaggerated gambols and friskiness, and becomes animated by impulses directly opposed to those that at first kept it cringing and shivering at its master's feet. The case of over-servile persons will readily occur to the mind as an instance of the same thing in the mental sphere. The instinct of self-display or self-assertion is chiefly evoked by success in the primary human activities, such as war and sport, love and reproduction. Its affective side, positive self-feeling or elation, is pleasurable; but its conative side, which consists simply in conduct known to boys as "showing off," does not seem to be of any great service to the individual or species. The point that should be noticed in both the instinct of self-display and self-abasement is the frequency with which they operate in close association with the sex instinct. This perhaps explains the original purpose of self-display.

Returning to the etiology of "hysterical" manifestations, we find that the symptoms (aphonia, monoplegia, analgesia, or what not) are commonly found to follow an incident such as an unfortunate love affair, the discovery of a disease of the reproductive system, or a terrifying and painful occurrence. Here we have those factors which evoke the instinct of self-abasement—failure in love or reproduction, fear and pain. The goal of the instinct is to elicit pity, sympathy, or attention from other people. In modern civilized life the best way to do this is to be ill; for the primitive conative activities of crouching, wailing, rending of garments, putting dust on the head, etc., no longer impress the public as of old, and may even excite ridicule. Accordingly the patient exhibits symptoms that often go with organic disease, and can sometimes hardly be distinguished from the latter even by an expert. That such phenomena can be seen apart from any voluntary origin, is shown by the fact that the symptoms are very often of a kind that are not under voluntary control at all, such as excessive borborygmi, local vasomotor disturbances, spasm of the oesophagus, and the other visceral manifestations of hysteria. These activities of the instinct of self-abasement are often seen to awaken (when successful) the instinct of self-display and the manifestations of positive self-feeling, in the manner alluded to above in the case of the dog. In other words, the patient, from being humbly miserable, comes, under the influence of wondering and sympathetic friends, and perhaps of the zealous physician, to take a pride in her symptoms and to derive undoubted gratification from showing them off and developing new ones. Hence the value of isolation treatment.

As, when surveying the involuntary disorders arising under the instinct of flight, we saw in self-inflicted wounds a parallel phenomenon guided by the intelligence, so in the "hysterical" class we observe conditions such as dermatitis artefacta, apparent fasting, alleged anuria, etc., which are all instigated by purposive intelligent conation.

The scope of suggestion in the production of functional troubles has not, so far, been mentioned. Some authorities, notably Babinski, attach extreme importance to it. There is no doubt that it often determines the type of symptom that arises. For instance, a slight injury to a limb may be followed by a monoplegia. A difficulty in swallowing during painful emotion, especially when accompanied by weeping, may initiate the globus hystericus. But it is here suggested that as imitation and suggestion play such a very large part in the causation of normal conduct, we should admit that they may have the same part in producing hysterical behaviour, without being the original causes of it.

In conclusion, how does the theory put forward in the preceding observations agree with the Freudian hypothesis? The school of Freud appears to explain morbid functional disturbances by supposing that the natural conative activity of an instinct (always the sexual) is liable to repression by the censorship of the moral nature or of education. The normal conation being thus in abeyance, the energy of the affect is transferred to an abnormal conative disposition, and functional disease follows. In this connexion it is interesting to turn again to the animal world. There we find beetles which, instead of running away when frightened, sham death; and birds which, under the influence of the parental instinct, develop a functional paralysis of a wing. What in these cases is the censor that represses the normal conative activity of the instincts, and what determines the exceedingly useful conative disposition that shall become linked to the affect; and could such repression of the conation and transfer of affective energy be transmitted to offspring as intact dispositions? The difficulty of answering these questions has led to the hypothesis advanced in these notes.

Summary.

1. Men and animals alike are swayed by a purposive impulse in their fundamental activities, and this impulse, or teleological striving, can be studied in the conative aspect of the instincts. In many animals instinctive behaviour consists in quite simple reactions, but we also find animals, especially insects, in which the behaviour is extremely complicated. We do not know in the least how this complexity of animal behaviour is produced, but there is reason to believe it is due to something different from human intelligence.

2. In man the complexity of his instinctive behaviour is due partly to intelligence and partly to the same cause that modifies the primitive responses of the animal.

3. It is here suggested that certain functional diseases often represent the modified conative activity of primary instincts—especially of flight, self-abasement and self-display; and that "hysteria" is an example in man of the complications which conations, originally simple, are known to undergo in animals.

THE USE OF X RAYS AS IMMUNITY-RAISING AGENTS BEFORE AND AFTER OPERATION FOR CANCER.

BY

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POST-OPERATIVE *x*-ray treatment in breast cancer is generally regarded as right and proper, but it appears necessary to emphasize the fact that before operation a peculiarly favourable opportunity is presented for treatment by radiation. The knife may be a means of disseminating stray cancer cells, but if, before the possibility of such dissemination occurs, we can bring about either (1) the

weakening of the malignant cells or (2) an increase in the resistance of the body tissues as a whole—or, better still, both of these desirable results—then the chance of successful colony formation by the parent growth will be much reduced. There is very good reason to believe that these favourable pre-operative conditions may be established by means of suitable *x*-ray preparation.

It has been shown experimentally that mouse cancer which has been exposed to radium or *x* rays is grafted with difficulty, or not at all, into fresh tracts, and that an animal which has been suitably irradiated is resistant to cancer grafts. There is also some clinical evidence which suggests that *x* rays have a helpful action in cancer, no matter to what part of the body they are applied. Such action can scarcely be exercised otherwise than through the blood. Morley Roberts would have us believe that cancer is the result of abnormal growth due to disturbed hormone balance; which disturbance is reflected in the composition of the blood. Certainly we know, on the one hand, that a few cases of cancer of the breast appear to have cleared up under thyroid administration; also that *x* rays powerfully affect the ductless glands, and have an influence on the cellular elements of the blood, and possibly on its plasma.

Such speculations, however, carry us beyond the intended scope of this article. The important point is that *x* rays act as much by their stimulating or regulating action upon the body, locally or generally, as by direct depression of cancer cells. Radiation undoubtedly has a deleterious effect upon embryonic cells, and in so far as cancer cells approach this type they are injured by it before normal cells. To this extent the action is "specific" in the same sense as quinine is a "specific" against the malaria parasite—that is, the parasite is injured by doses which have little or no effect on the cells of the body. So with mercury and salvarsan in syphilis.

But, apart from the treatment of rodent ulcer, which does not tend to metastasize, the general stimulating and regulating action of *x* rays is of more value than its "specific" local effect upon pseudo-embryonic cells. We may speak of the process in general terms as "raising the resistance" to cancer. That the general resistance can be so raised has been conclusively proved so far as mouse cancer is concerned. W. S. Bainbridge[1] quotes Murphy and Norton, of the Rockefeller Institute, as follows:

> They found that the chief characteristic of a failing heteroplastic graft in the unsuitable host is a marked local accumulation of lymphocytes. The histological position was found to be identical with that noticed in a failing cancer graft in an immune animal of the same species. Synchronous with the establishment of the cancer immunity, and during the period in which the lymphocytes are accumulating round the cancer graft, there is a lymphocytic crisis in the circulating blood, this being observed in actively immunized animals as well as those possessing a natural immunity, but being totally absent in animals susceptible to the cancer graft. If this lymphocytic crisis be prevented in immune animals by previous destruction of the lymphoid elements by the *x* ray, the potentially immune animal is changed to a susceptible one. Leaving out of consideration the complicated question of the direct effect of *x* ray on cancer they studied this artificial method of producing a lymphocytosis in relation to the resistance of mice to their own spontaneous tumours.
>
> In order to do this they removed the cancer, and then subjected the animal to a stimulating dose of the *x* rays. A graft of the original tumour was then immediately replaced in the groin of the animal. The same procedure, with the omission of the *x* rays, was carried out in control animals. In others, as a further check to the experiments, the cancers were removed and exposed directly to the same amount of *x* ray that the animals of the first group had received, a graft of the tumour being then returned to its original host. An *x*-ray dose they found which produced a lymphocytosis when administered direct to the animal, was sufficient to render 50 per cent. of the mice so treated immune to a return graft of their own tumour; and, in the other 50 per cent., greatly to retard the return of the disease. A similar dose given to the cancer direct outside the body did not influence the subsequent growth of a graft of this tumour when returned to its original host.
>
> These observers considered that, if this pronounced result could be obtained with one stimulating dose, it is probable that a more pronounced effect might be obtained by a second exposure to *x* ray after a suitable interval.

In man the immunity produced by *x* rays is not, however, specific, as the same treatment will cause great improvement in the subjects of tuberculosis, or, for that matter, of various other sorts of microbic infection.

A consideration of these facts should lead to clear ideas of what may be and what ought not to be expected from *x* rays in cancer. In so far as their effect is a direct one upon a localized growth, they are an alternative to other local procedures, and each case must be judged upon its merits. Rodent ulcer practically always, and sarcoma sometimes, should be treated by radiation. The case as between *x* rays and radium must be decided by their local results, and these in turn must be judged against those of surgery, diathermy, etc.

But when we come to final issues we have the question of raising immunity—in other words, it is only in so far as we can aid the body to resist fresh invasions that we prolong life. The immunity produced by *x* rays is partial and non-specific, and it has yet to be proved that that induced by radium is any different in quality or quantity. Where a wide distribution of radiation is desirable, as in the treatment of breast cancer, the practical advantages of *x* rays over radium are generally admitted, even by those who believe that the latter would be preferable, were it to be had in abundance.

The local superiority of radium in cancer of the lip and of mucous membranes in general is undoubted, but unless the general increased resistance is of a different type from that produced by *x* rays, hopes based upon the employment of radium in large quantities would appear unlikely to be fulfilled. At the present moment we possess *x*-ray apparatus capable of giving a practically unlimited output of rays, but no great advantage accrues, as it is easy to push the dosage to a point at which the general resistance is actually lowered.

Even quite recently I have seen questions in the medical press as to the desirability of using an agent in the treatment of cancer which can actually induce the disease. The best answer to this is to be found in a consideration of such a drug as arsenic. Arsenic is of the utmost value as a tonic, and in certain diseases of the blood, the nervous system, and the skin, yet excessive or too prolonged dosage involves a risk of neuritis or dermatitis, or both. In *x*-ray therapy it is important not to exhaust the response of the system. "Staleness" to *x* rays may ensue even before the danger point is reached. Therefore, in my opinion, a single course should not exceed two months in length, nor should another be given until an equal interval of time has elapsed.

But although clinical experience teaches that a favourable response continues to be elicited by *x* rays for many weeks, this does not mean that the full period should be used in pre-operative raying. We must ask: What is the minimum time in which an appreciable effect can be produced in a breast cancer? My experience in this matter is derived from (1) cases of recurrence in the other breast, after operation; (2) tumours in old people when operation is refused or not indicated; (3) a few rare instances when cancer coincides with some condition such as cardiac trouble, where the risk to life of surgical measures is too great. I have no hesitation in saying that a definite effect can be produced in less than three weeks.

By this I mean that the lump is visibly smaller, and pain, if present, relieved. This result is accomplished by six to eight sittings spaced at intervals of two to three days. The doses are comparatively small, and no visible skin reaction is produced. The effect, in the writer's opinion, is rather of resistance-raising than of direct injury to the growth. This makes it all the more valuable, as we desire to render the body in so far as possible generally immune, so that the settlement of any cancer cells freed by the knife may be opposed, no matter where they may be carried by the blood stream. Also, no matter what the cause may be of the shrinkage of the tumour, there can be little doubt that its component cells will be less able to establish themselves in new surroundings than they were before this shrinkage began.

The fact that a case has received pre-operative treatment does not in any way modify the obligation to give post-operative irradiation. But this may be safely delayed for a month—that is, until the patient is about again.

What can be said against the procedure advocated? The visible good effects of *x* rays upon cancerous growths where operation is contraindicated are beyond doubt. There is no evidence that pre-operative raying in any way interferes with the healing of the wound. The sole argument against the procedure must therefore be that it delays operation for two to three weeks. But this argument, to be valid, implies a belief that the cancer, although improving to the eye—which cannot be denied—is never-

theless spreading in the depth. While this might be so with improper technique, as by limiting the rays to the tumour itself, it cannot happen during the "stage of response" provided that a wide cone of rays is used, so that practically the whole chest, neck, and upper abdomen are exposed. The rays must also be filtered through at least 3 mm. of aluminium, and be highly penetrating. Under these conditions a growth which has already spread to the mediastinum can often be beneficially affected, so that it is almost inconceivable that any deep spreading should occur in the circumstances under discussion.

Nothing which has been said here is to be taken as meaning that the growth would not ultimately spread, in spite of *x*-ray treatment, supposing no operation to be done. Why this should be so we do not understand. But it appears that after a time the tissue response fails, as it does to arsenic in pernicious anaemia. Hence the necessity for operative removal, whenever possible, before the crest of the wave of improvement under *x* rays has been reached.

It is obvious that if we can increase resistance to cancer by *x* rays, we should do so after operation as well as before. Although we do not know what is going to happen in any individual case, we know that in a large percentage of all cases operated on for cancer of the breast, recurrence—or, at any rate, further growth—will occur. The rate of recurrence is estimated at 40 per cent. by the optimists, up to as high as 80 per cent. by the more pessimistically inclined. But even if we side with the optimists, two out of every five cases are certain to go wrong. So little do we know where the recurrence will occur—whether in the breast, in the stomach, the liver, spine, or ovaries—that a local effect, even though widely spead beyond the original site of the disease, must in itself be insufficient in many cases to prevent disaster. But the production of a general immunity is well worth aiming at. It may soon be possible, by using blood tests as criteria, to gauge scientifically the dosage at each sitting, the number of sittings in a course with their spacing, and finally, the intervals between successive courses.

Meanwhile, so long as we are not dealing with actual recurrence, we must be very careful to give too little rather than too much. The present writer feels that the possession of powerful apparatus has of late years led to unduly heavy dosage for prophylactic purposes. The experimentally verified fact that small doses of *x* rays raise immunity to cancer, whereas large ones decrease or abolish it, will, if kept carefully in mind, at least safeguard the radiologist from transgressing that fundamental therapeutic precept, *nil nocere*.

REFERENCE.

[1] The Cancer Problem and the World War, *Practitioner*, xcviii, pp. 229-230; The Effect of *X* Rays on the Resistance to Cancer in Mice, *Science*, 1915, N.S., X, 411, 842.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FATAL POISONING BY WATER DROPWORT (OENANTHE CROCATA).

THE following case of poisoning by *Oenanthe crocata* is of interest because of its rarity and rapid course:

A single man, aged about 40, had for many years shown slight mental abnormality; I had seen him eighteen days before his death, when he was despondent and believed that he had committed some unforgivable sin. When summoned to him at 3 p.m., on April 24th, I found him lying on the floor of his bedroom; his face was bloated and livid, the eyes fixed and staring, and the pupils were dilated, his breathing was laboured and stertorous, and the pulse feeble. Blood-stained froth escaped from his mouth, and he was totally insensible and violently convulsed. Lying under his bed were a large number of roots, which when broken emitted a nauseous somewhat mouse-like odour like that of hemlock. When the convulsion had ceased the teeth were prized open and the stomach was repeatedly washed out with tepid water; the washings contained particles of vegetable débris, and had also the characteristic odour of hemlock. Lavage was continued until he had another violent and prolonged convulsion; when this had ceased respiration and circulation rapidly became fainter, and stopped ten minutes after my arrival. It appeared that he had gathered the roots in the early forenoon. He went to bed at 1.30 and an hour later was noticed to be restless and twisting. This was the first convulsion; he had two others before my arrival and was unconscious during his remaining three-quarters of an hour of life.

Examination of the roots showed them to consist of a series of tubers, varying from two to ten in each plant, some of them oblong, smooth, and succulent, others thinner and more fibrous and tapering, like bunches of small parsnips, for which they are apt to be mistaken. Their colour was yellowish-white, and when cut across were found to be dotted over with little brown pin-head spots, the whole becoming yellow on exposure to the air. They were quite characteristic of the plant variously known as *Oenanthe crocata* (the classical name, from *oinos*, wine, and *anthos*, a flower—owing to the vinous scent of the flowers), "hemlock water dropwort," "horsebane," and "five finger root." It is also called "water hemlock," but this name is more accurately applied to an allied poisonous plant *Cicuta virosa*, or "cowbane." *Oenanthe crocata* is one of the most virulent of vegetable poisons, more deadly even than the more familiar *Conium maculatum*, or "spotted hemlock." It contains "oenanthotoxin," which causes convulsions by its action on the spinal medulla. The symptoms in this case were quite typical.

The plant is very common along the banks of ditches and small streams in this neighbourhood, where it is familiarly known as "hech-how." It has on several occasions in recent years caused the death of cattle, and a more remote instance is on record in which it proved fatal to a number of stranger seamen who partook of its roots under the impression that they were a harmless kind of parsnip.

T. HARVEY THOMSON, M.D., C.M., D.P.H.
Campbeltown, Argyll.

DIURNAL ENURESIS IN A CHILD: TREATMENT WITH GALVANISM.

A. A., aged 5 years, had suffered from frequency of micturition during the day only, and never at night. A fortnight after an attack of measles she had great frequency of micturition, passing water every five minutes. This was treated for a fortnight with increasing doses of belladonna, and then for a week with belladonna and lycopodium. The condition slightly improved; she then passed water about every twenty minutes, but no further improvement could be obtained. She was ordered small doses of iron, and galvanism was applied for ten minutes to the suprapubic region. After the first application the frequency was diminished to once an hour, and after the second application to once in two hours and a half. This was two months ago, and there has been no return. On each occasion two cells of the battery were used. The ampèrage was not measured, as my dynamometer is away for repairs.

STANLEY E. DENYER, C.M.G.,
M.D.Camb., F.R.C.S.Eng.,
Acting Honorary Physician, Hull Infirmary.

HEAT HYPERPYREXIA.

I SERVED with the Indian Expeditionary Force during the summer—May to August, 1916—at Nasireyeh on the Euphrates; as the troops were in tents and hospital reed huts we had not the luxury of electric fans or punkahs.

I was attached to a combined field ambulance as second in command, and had charge of the European cases coming into the field hospital.

The treatment that my commanding officer and I adopted was as follows: Our brigade was holding one bank of the river. We dug a trench 6 ft. long by 8 ft. broad and 4 ft. deep, and covered it with reeds. The majority of cases of hyperperexia came into hospital between 4 and 6 p.m. The rectal temperature was never less than 108° F. As these cases came in unconscious and cyanosed, on stretchers, they were placed across the trench and I injected $\frac{1}{15}$ grain of strychnine and then proceeded with artificial respiration and the lavage. I had relays of orderlies lent from the battalion, who poured water over them. The trench very quickly filled, so that the patients' bodies were immersed except their heads. The rectal temperatures fluctuated a good deal, so that it was never safe to stop the douching until the temperature remained fixed at, but never lower than, 101° F. An invariable sign of recovery was vomiting. After the patients had recovered consciousness they were immediately removed into one of the hospital reed huts, and thin calico sheets wrapped round them—heads and trunks. I posted orderlies who passed down the lines of patients and

poured water over them, thus keeping the sheets constantly wet. As soon as the sun went down they were brought out into the open and the same method repeated until there was a decided fall in the atmospheric temperature, which usually occurred after midnight. On the following day, before it began to get very hot, I gave each patient an intramuscular injection of 3 grains of quinine bihydrochloride; I had no case of gluteal abscess or sloughing. I was able to keep these patients under observation for eight to ten days before they could be evacuated. During the whole of this period and during the journey to the base wet sheets were used. No death occurred among 40 odd cases of this type of heat hyperpyrexia treated by this method.

In one case of the choleraic type, after transfusion with Rogers's hypertonic saline, the temperature from subnormal gradually rose in two days to 108° F., and, despite all efforts, the man died. I had one gastric case—an officer—who was treated with lavage and full doses of mercury perchloride, with opium and sips of champagne. He recovered. There was no opportunity of making blood examinations or chemical analysis of urine, nor could we use modern methods of treatment, but the result was a good testimony to our methods, though crude.

JOHN N. MCINTOSH, M.B., Ch.B.Edin.,
Sunderland. Captain R.A.M.C.(S.R.).

AN ACUTE ATTACK OF ASTHMATIC DYSPNOEA CAUSED BY FILARIAL EMBRYOS.

I WAS called at 7.30 p.m. on February 24th, 1920, to a man, aged about 50, who since the previous night had been unable to sleep and had breathed with great difficulty. He was unable either to lie down or sit up, and maintained a semi-recumbent position; his face and lips were blue; respirations were 28, pulse 100, temperature 99°. He denied having had a similar attack before, but said he had had malaria some years ago. Sibilant and sonorous rhonchi and large and small râles were heard all over the chest. The diagnosis was made of an acute attack of asthma, brought on by exposure during the previous night.

An injection of 0.5 c.cm. adrenalin (1 in 1,000) was made, and a mixture of potassium iodide and potassium nitrate prescribed; a blood smear was also taken from a finger. On the morning of February 25th the dyspnoea was still worse; the patient had not slept and had vomited the mixture. For his feeling of constriction of the chest a mustard plaster was prescribed, but without effect. A hypodermic injection of morphine gr. ¼ was given, and belladonna was added to the mixture; the diagnosis of true asthma was now regarded with some doubt. The blood smear was examined in the afternoon, when two filarial embryos were detected; a leucocyte count showed the following picture—namely, increase of polymorphs and eosinophiles: Polymorphs, 80 per cent.; large mononuclears, 10 per cent.; small mononuclears, 6 per cent.; eosinophiles, 4 per cent.

It was now clear that the asthma was due to the irritation caused by the filarial embryos in the pulmonary capillaries; the failure of adrenalin, potassium iodide, belladonna, and morphine was explained. The same evening the opinion was expressed that the attack would now subside without further treatment, as the filarial embryos would retire into the lymphatic vessels and glands of the posterior mediastinum. At 7 p.m. the patient had no more dyspnoea, as foretold, but a few rhonchi and râles were present. Another injection of morphine ¼ grain was given, and he slept comfortably; breathing henceforward was easy.

On the morning of the 26th the patient complained of heaviness of the right arm, and was unable to raise it. There was no loss of sensation, nor paralysis, and the symptom was attributed to the presence of microfilariae in the lymphatics of the axilla, a condition which would pass off as the embryos retired into the deeper lymphatic system, there to remain until another exposure or chill caused swelling of an extremity, filarial fever, or another attack of asthma.

F. F. BANA, M.B., M.R.C.S., D.P.H.,
Bombay. D.T.M. and H.

A COURSE of advanced lectures on diseases of the gastro-intestinal canal will be given at the Hôtel-Dieu, Paris, beginning on July 10th and ending on July 24th. The course will consist of lectures and demonstrations, and the fee is 150 francs. It is open to foreign as well as French doctors. At the end of the first week there will be a trip to Vichy and the spas of Auvergne.

Reports of Societies.

DIPHTHERIA BACILLI IN THE THROAT.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine, on May 28th, the President, Dr. E. W. GOODALL, in the chair, Dr. P. HARTLEY and Professor C. J. MARTIN, F.R.S., read a paper on the apparent rate of disappearance of diphtheria bacilli from the throat. The authors had been able to study the apparent rate of disappearance of diphtheria bacilli from the throat under exceptionally favourable circumstances, as all the cases, 457 in number, occurred in soldiers in France, and treatment and methods of examination attained a degree of uniformity which is not likely to be met with in civil practice. The data, when subjected to statistical analysis, revealed some interesting features. When the numbers still carrying *B. diphtheriae* were plotted as ordinates, against periods of five days along the abscissa, it was found that after the first five days had elapsed the observations fell upon a regular curve. The numbers fall rapidly at first, and then more and more slowly. The form of the curve suggested a logarithmic relationship, and when the logarithms of the numbers remaining infective were plotted against time the points fell on a straight line. An equation to the curve enabled a series of calculated values to be arrived at, and these agreed in a remarkable way with the figures actually observed. The conclusion seemed justified that the rate at which a population frees itself from diphtheria bacilli can be represented by a simple expression which yields a constant (the constant being the tangent of the angle where the line cuts the abscissae). This constant expressed the velocity with which the carrier state apparently disappeared. Such a simple relationship suggested that the disappearance of bacilli from the throat was due to the operation of a number of small causes—that is, to chance—except in the relatively rare cases of persons with abnormal throats.

In the series under consideration the criterion of freedom from infection chosen was three successive negative examinations of the throat at weekly intervals. The standard adopted was a compromise, and it was not claimed that three successive negatives excluded the possibility of discharging some convalescents who still harboured diphtheria bacilli. Other workers had deemed two, or even one, negative finding sufficient. The authors then analysed their figures in order to determine what the apparent rate of disappearance would be if one, two, or three successive negative examinations respectively had been taken as the criterion of freedom. The value for the constant K was 0.0363, 0.0264, and 0.0218 respectively. In the authors' experience the rate of discharge from hospital, as presumably free from infection, was 4.9 per cent. per day when three successive negatives were demanded, 5.4 per cent. per day on a basis of two successive negatives, and 7.1 per cent. per day if only one negative examination were required. The percentage of carriers missed, even when three negatives were demanded, was probably considerable, but the number would have been increased by 9.3 per cent. and 29 per cent. respectively if two or only one negative examination had been the criterion adopted.

The authors compared their results with those of earlier workers (Park and Beebe, 1894; Scheller, 1906; Tjaden, 1907). The figures of Park and Beebe and Tjaden showed the same logarithmic relation; those of Scheller, whose observations were made on out-patients, many of whom were lost sight of, were irregular. The striking fact was the difference in the rate of disappearance. In Tjaden's cases it was six times as rapid as in the authors' series on the same basis—namely, one negative finding. The data collected by Woodhead from all the hospitals of the Metropolitan Asylums Board for the years 1895 and 1896, and those published by the Massachusetts State Board of Health for the years 1896 to 1905, was also studied and analysed. The rate of disappearance of bacilli in the Metropolitan Asylums Board figures was a little slower than in the authors' series, while in the case of the American series the rate was considerably quicker. The interval before the steady fall began was much greater in these two series of cases, which might be due to the

fact that in those early days the dose of antitoxin administered was much less, and the duration of illness longer in consequence.

The authors estimated that the average duration of stay in hospital in their series was forty-five days, twenty of which were taken up in procuring information regarding the absence of bacilli in the throat. During this latter period the patient might be, and often was, fit to leave. If two successive negative examinations had been required instead of three, the duration of stay in hospital would have been reduced to thirty-four days, while if only one negative examination had been demanded the period would have been further reduced to twenty-one days. As pointed out above, this economy in respect of stay in hospital was accompanied by a diminution of accuracy, and the risk of discharging patients still harbouring bacilli was increased. The authors encountered four convalescents with abnormally large tonsils with deep crypts, who proved to be stubborn carriers. They supported the opinion of Pegler (1905) and Sears (1919) that the best treatment in these cases was radical enucleation of the tonsils. This was done in their four cases, and the subsequent findings were uniformly negative.

The paper was discussed by Dr. BROWNLEE, Dr. TURNER, Dr. DUDFIELD, Dr. BRINCKER, Dr. HUNTER, Dr. BOND, Dr. BUTLER, Dr. GREENWOOD, and the PRESIDENT.

ENTEROPTOSIS.

AT a meeting of the Medico-Chirurgical Society of Edinburgh, on June 2nd, Emeritus Professor F. M. CAIRD presiding, Dr. HOPE FOWLER showed a series of slides demonstrating downward displacement of stomach and intestines, and also the frequently associated cardioptosis.

Dr. CHALMERS WATSON then opened a discussion on enteroptosis and associated conditions. The condition was very common in men and children, as well as in women, and in his series of 510 cases the proportion was 2 men to 3 women. After referring to the symptomatology, to the organic diseases in appendix, stomach, and duodenum simulated by it, to the frequency of bands and membranes which, in his view, were not congenital but secondary to the dragging on peritoneal folds and mesenteries, he dealt with the skeletal changes, especially with the virginal type where there was narrowing of the thorax and a downward slanting of the lower ribs, and the maternal type, where these thoracic changes were absent. In addition to the flabby abdominal wall there was often faulty action of the diaphragm, with important effects not only on the intestinal muscles, but also on the intestinal circulation. If microscopic lesions in the colon developed, and this was frequent, septic absorption took place and largely accounted for the symptoms of toxaemia. Evidence of this septic change and absorption was to be found in the motions and in the condition of the urine (bacteriuria and pyuria). This toxaemia explained such general conditions as arthritis, neuro-muscular changes and neurasthenia. A considerable degree of enteroptosis might exist without symptoms, but he believed that it was never present where there was a high grade of general health; and it frequently began quite early in life, being dependent in those cases on lack of breast-nursing, on constipation, on defective education in personal hygiene, on faulty respiration as produced by adenoids. The great variation in the symptoms was mainly accounted for by the varying activity of three factors—the degree of enteroptosis (mechanical), the amount of septic absorption (toxic), and the mental tone (psychical). He attached much importance to the psychical factor, both in pathology and in treatment. As to treatment, he insisted on the value of prophylactic and early measures, in the form of massage and selected exercises which maintained or restored the efficiency of the diaphragm and the abdominal muscles.

Professor A. ROBINSON said that in the dissecting-room visceroptosis, and bands and kinks were often present in old people without having produced symptoms during life; and that much of the evidence of visceroptosis produced by clinicians was faulty in being uncontrolled. In his belief visceroptosis, when associated with symptoms, was only part of a general incapacity, and this subnormal condition had existed from birth.

Professor Sir HAROLD STILES was convinced that the condition was developmental, and that heredity was a factor; enteroptosis was often associated with a long and slender frame. He was certain that many children were born with a degree of enteroptosis, this not producing symptoms unless aggravated in later life. Physical education in school children was therefore greatly needed to prevent the aggravated types of adult life. In addition, there might be some subtle sexual condition at work, which would account for the greater frequency of the condition in women. An abdominal support was of value, but only if prepared from a cast of the abdominal wall in the Trendelenburg position. In extreme cases he advised removal of the proximal half of the colon.

Professor MEAKINS said that there was not reliable evidence of toxaemia in enteroptosis unless there was also a dilated caecum, and that this was a superadded condition. A well fitted abdominal belt was of value. He did not approve of operation unless in a few selected cases. Mr. J. W. DOWDEN said that besides the acquired type of enteroptosis so frequent in modern women there was also a congenital variety. Intestinal kinks often produced no symptoms. Too much stress had been laid on laxity of the abdominal wall, while severe constipation might exist without toxic symptoms. Dr. H. RAINY summarized his experience of 800 *x*-ray examinations. He believed in a toxic absorption from the caecum and colon. Mr. D. P. D. WILKIE gave the results of 400 *post-mortem* examinations in adults and stillborn children. These supported the view that abnormal bands and membranes were congenital. He also suggested that duodenal dilatation might account for some of the symptoms of enteroptosis. Mr. J. W. STRUTHERS said that a normal standard was still lacking for the true appreciation of the *x*-ray appearances of enteroptosis. These patients were of congenitally poor physique. Dr. E. BRAMWELL emphasized the emotions as a factor in initiating the cycle, and spoke of the danger of the doctor producing an anxiety neurosis in these patients.

Dr. CHALMERS WATSON replied.

VENTILATION AND HEATING OF TUBERCULOSIS INSTITUTIONS.

A MEETING of the newly formed Society of Superintendents of Tuberculosis Institutions was held on May 17th at 122, Harley Street, Dr. JANE WALKER, President, being in the chair. Twenty-nine new ordinary members and nineteen associate members were elected. Dr. H. O. Blanford (Midhurst) and Dr. Vere Pearson (Mundesley) were elected to the Executive Committee.

Dr. LEONARD HILL, F.R.S., opened a discussion on the physiological principles involved in the ventilation and heating of tuberculosis institutions. The effects of bad ventilation were not, he said, produced by the excess of CO_2, nor by diminution of the percentage of oxygen in the air. Workers in submarines could easily tolerate without discomfort as much as 3 per cent. of CO_2; in the high Alps the oxygen might fall to 17 per cent. or less without affecting the health of the mountain dwellers. The view that obnoxious organic matter in exhaled air was at fault was no longer held. There was the clearest evidence that the physical properties of the atmosphere had a great influence on the physiology of the body, and the determining factors in good ventilation were the coolness, the movement, and the dryness of the air. The lecturer described his kata-thermometer, and showed how cool air of low humidity inspired through the nostrils is raised by means of the increased flow of arterial blood through the nasal mucosa to a constant temperature at the back of the nose. In addition, there was a greater flow of lymph, which evaporated. This might be increased as much as five or ten times by exercise in the open air. The drier the air (within limits) the better. The greater the vascular activity of the nose the greater was the power of resisting disease; hence the resistance of outdoor workers to respiratory diseases. Apart from influenza, our soldiers and sailors in the war were singularly free from respiratory diseases. Through its cooling power the skin controlled the metabolism of the body. Cooling of the skin by outdoor life might double the resting metabolism, which, with exercise, might be increased five or more times, with concomitant improvement in appetite, assimilation of food, and elimination of harmful waste products.

Dr. JANE WALKER, Dr. JAMES WATT, Dr. MARCUS PATERSON, Dr. W. C. FOWLER, Dr. NOEL BARDSWELL, Dr. P. W. EDWARDS, and Dr. H. O. BLANFORD contributed to the discussion. In reply to questions, Dr. HILL stated that people should wear as little clothing as possible. It was the absolute and not the relative humidity of the air which mattered. In wet mists it was preferable to keep patients indoors. The ideal condition of heating was the radiant heat of the sun. In ordinary dwellings steam pipes tended to heat the air at the ceiling and to leave the air near the floor as much as 10 degrees cooler. It was not harmful, however, to have different parts of the body under different conditions of temperature. Such differences kept up the nervous tone, avoided monotony, and acted as a stimulant. He commended the practice of many sanatoriums in shutting up and heating by radiators rooms not in use, and making use of the radiant heat stored in the walls when the rooms had to be opened up for patients. The practical questions of clothing and of heating in open-air institutions would be dealt with in a forthcoming publication of the Medical Research Council.

Dr. MARCUS PATERSON opened a discussion on the relative value of butter and margarine in the treatment of tuberculosis. He believed that in institutions where margarine was used the necessary supply of the fat-soluble A vitamine was quite well obtained from cod-liver oil or from milk, as well as from the animal fats of meat, bacon, and dripping. In most institutions 14 pints of milk were consumed per patient per week, and this quantity contained the equivalent of from 10 to 12 oz. of butter. On the whole, opinion in the subsequent discussion was strongly in favour of the use of margarine in place of the more expensive butter, in cases in which milk or cod-liver oil formed part of the dietary.

Reviews.

THE SURGERY OF THE TEMPORAL BONE.

SIR CHARLES BALLANCE has long been looked upon as the aural surgeon's most reliable guide through the difficulties of the diagnosis and treatment of the dangerous sequelae of suppurative disease of the middle ear—in other words, the highest authority on the *Surgery of the Temporal Bone*,[1] the title of the book he has now published in collaboration with Dr. C. D. GREEN. This bone forces itself on our attention from the earliest days of our studies in osteology till the end of our careers as general practitioners, surgeons, physicians, or specialists. Its diseases carry with them far more danger to health and life than those of the eye, a fact well known to Celsus, as is noted in the historical chapter in this book. In spite of this fact the tendency has been to place the study of ear disease in a much lower position than that of diseases of the eye in the medical curriculum, professional examinations, and hospital installations. Sir Charles Ballance makes a powerful and almost passionate protest against this incongruity. It is to be hoped that it will not fall on deaf ears, and that his plea for the establishment of otology in its rightful position as a princess and not as a Cinderella in the realm of medicine may receive the attention it deserves. The publication of the two impressive volumes of which this work consists should give pause to those who put spokes in the wheel of progress in otology as a branch of surgery, equal in importance with any other, and deserving of equal dignity.

The great characteristic of this book is its comprehensiveness as regards the work of the author himself, scattered through various transactions, journals, and lectures, and even more as regards that of other authors of all nationalities.

Those who were fortunate enough to have read Sir Charles Ballance's article, entitled "Some Ear Cases," in the first edition of Clifford Allbutt's *System of Medicine* at the time of its publication, had a concentrated gallery of illustration of the dangerous sequelae of suppurative disease in the temporal bone to which comparatively little has been added since. The elaboration of the principles there set forth and the methods of diagnosis and treatment founded on them may be said to form the foundation of the present work. The writings of other authors of all nations dealing with the subject are so fully quoted, epitomized, and analysed that we have before us a compendium of the literature in which scarcely any papers of importance escape reference. The anatomical, pathological, and clinical aspects are set out with a wealth of detail and a profusion of illustration such as have not before been offered. Many quotations are from works which have not hitherto been noticed by English writers, and those who are not familiar with foreign languages will thus find this treatise invaluable. As a minor illustration, Rudloff's drawings of the position of the sigmoid sinus and its surface anatomy in infancy and childhood would seem to have been overlooked by others, but they are here reproduced in their original form. Stiles's investigations as to the position of the facial nerve in infancy and childhood are not so well known as they deserve; they are given here in full detail. All that is of practical importance in regard to the recently developed labyrinthine tests and to operations on the labyrinth also finds a place.

In every respect these two handsome volumes contain practically all that can be said with regard to the surgery of the temporal bone in its widest sense. Aural specialists will find their views classified and widened by this presentation of the subject by a general surgeon who is also a specialist, and general surgeons will be grateful for the help here afforded them towards the elucidation of the "special" aspects of this important subject as a branch of surgery. Aurist and surgeon will be led by the study of this book to a better and fuller understanding of each other's point of view, to the advantage of both. The credit of British otology and surgery will be materially increased in all lands by the publication of this epoch-making work.

[1] *Essays on the Surgery of the Temporal Bone.* By Sir Charles A. Ballance, K.C.M.G., C.B., M.V.O., M.S., F.R.C.S., with the assistance of Charles David Green, M.D., F.R.C.S. Illustrated by 125 plates and 120 figures. In two volumes. London: Macmillan and Co., Ltd., 1919. (Med. 4to, pp. 612; 250 plates, 240 figures. £5 5s. net, two volumes.)

RADIOGRAPHY IN PULMONARY TUBERCULOSIS.

THE first volume of Dr. WALKER OVEREND'S book, *The Radiography of the Chest*,[2] is concerned with pulmonary tuberculosis. Great stress is laid upon the value of an *x*-ray examination. He maintains that in many instances radiography alone is absolutely diagnostic, but admits that it is always expedient to check and compare results by the usual means of investigation. This is, of course, the sane method to be adopted in the investigation of disease; no one method should be solely used when several are available, nor should it be expected from radiographers that an opinion should be given on an *x*-ray examination alone.

In the consideration of diseases of the chest it is obviously of importance to have a thorough knowledge of the normal, both as shown by a screen examination, and as shown on plates taken in the various standard positions, and the first chapter is restricted to a careful description of the normal shadows and their meaning. In discussing the pulmonary reticulum it is stated that the actual anatomical substratum to which the tracery is attributable is still a matter of discussion, but hardly sufficient reference is made to the valuable pioneer work of Dunham, whose experiments appear to prove beyond all doubt the manner in which these shadows are built up. The chapter on tuberculosis of the bronchial glands is illustrated by many effective radiographs, some of them all the more interesting and conclusive because the physical signs and history of the cases are related, and in some the *post-mortem* appearances are compared with the radiographic. In summing up this part of the subject the author expresses the opinion that there are no clinical criteria of any value, and that radiological examination is necessary for the diagnosis of tuberculosis of the bronchial glands.

The rest of the book deals with the various manifestations of tubercle of the lungs and their radiographic appearances. Perhaps too much is made of the different ways in which tubercle attacks the lung, and too great stress is laid upon the names designed to point out the different varieties. After all, tubercle is tubercle, and whether it invades and spreads from one focus or area or another is of no great importance from the radiographic

[2] *The Radiography of the Chest.* Vol. i, Pulmonary Tuberculosis. By Walker Overend, M.A., M.D., B.Sc. London: William Heinemann (Medical Books), Limited. 1920. (Demy 8vo, pp. 119; 99 radiograms, 9 diagrams. 17s. 6d. net.)

standpoint; it is the abnormal shadows which are seen on the plates and their correct interpretation which are of importance; whether, in the first place, the shadows are or are not likely to be caused by tubercle; and, in the second place, whether they are radiographically more likely to be caused by active, quiescent, or cured tubercle.

The chapters on bronchopneumonic and nodal types, on bronchopneumonic pseudo-lobar tubercle, on miner's phthisis, on fibroid phthisis, on pneumonic phthisis, on miliary tubercle, and on the complications of pulmonary tuberculosis, which follow are written on the same lines: a detailed description of the condition under discussion is followed by a review of the physical signs to be expected, the narration of the salient features of cases, the signs being contrasted with the radiographic findings, numerous typical illustrations are given, and then general remarks and conclusions are stated.

In the concluding chapter the author sums up the present position as to the radiological diagnosis of pulmonary phthisis, points out the advantages of a skilled *x*-ray investigation, and insists upon the co operation between the clinician, pathologist, and radiologist which is necessary to increase the knowledge of the disease in its incipient stages and in its principal types, and to mature the methods of its treatment and control.

Well written, well and profusely illustrated, the case for radiography is admirably and graphically set forth.

PATON'S "PHYSIOLOGY."

THE fifth edition of Professor NOËL PATON'S *Essentials of Human Physiology*[3] offers the student a well informed and clearly written critical account of the subject, calculated to make the reader think, as well as learn by memory. The new edition is a hundred pages longer than the fourth and has forty more diagrams; the augmentation may be put down as legitimate growth rather than the beginnings of giantism, and the book certainly gives a satisfactorily complete account of its subjects. After a brief account of the growth of physiology, Professor Paton describes protoplasm, the cell, and the various tissues. The latter he puts in two classes, the "vegetative tissues," and the "master tissues" or nerve and muscle. The greater part of the volume is taken up with the nutrition of the tissues; it is interesting in these parlous days to find a physiologist who will put in a good word for alcohol. Professor Paton recognizes its value as a food and as a drug, adding that it may and does increase the pleasure of life, and that its great use is in extreme fatigue when the work is over; most people can fully oxidize about 2 oz. of it in the twenty-four hours.

Emphasis is laid on the importance of co-ordinating practical work with reading in the study of physiology, and constant references to the methods and results of experiment are made the keynote of the volume. Describing the glands with internal secretions, Professor Paton calls them the "endocrinetes"; it may be noted that the word *θυρος* on page 610 should be *θυρα*. The illustrations, for the most part diagrammatic, are well chosen, and full advantage of variations in the type is taken—a great help to the reader. To students preparing for examinations in physiology the book should prove of great service.

NOTES ON BOOKS.

PROGRESS in the teaching of surgery can never be furthered by the indiscriminate production of textbooks which are merely epitomes. Yet, as the author of *A Textbook of Surgery*,[4] Dr. W. Q. WOOD, points out, the student has scanty time to read through the longer manuals. In this work some five hundred pages are packed with facts, but there are no illustrations. The brevity of the sections on the pathology and treatment of the various surgical disorders was no doubt unavoidable, but it should have been possible to incorporate into the whole work the essential leaven of surgical principles. We can picture the student using this type of book and underlining statements which are either bare half-truths or errors—all to be committed to memory. Thus we quote at random from the section dealing with congenital stenosis of the pylorus: "If improvement does not quickly follow" (that is, medical treatment), "a gastro-jejunostomy may be performed, but the mortality is high." This sentence comprises all that we have observed to be said about surgical treatment of congenital pyloric stenosis in this textbook. It is to be doubted whether a book of this type is likely to be of much value to the undergraduate student.

Professor SAMAJA'S short book on von Recklinghausen's disease[5] contains a workmanlike summary of the extensive literature devoted to this affection of the skin and peripheral nerves, the first published case dating very possibly from the year 1793, though the disorder was not described by von Recklinghausen until 1832. The diagnosis from no less than fifteen other diseases that may resemble it has to be made, according to the author's enumeration; the treatment or treatments that may on occasion prove serviceable are shortly considered on the last two pages of the text. The book ends with an admirably sorted bibliography, and may be warmly recommended to the attention of the pathologist and of the specialist in diseases of the skin.

Miss BARBER'S pamphlet entitled *A British Nurse in Bolshevik Russia*[6] gives a brief general account of what she saw and did in Russia and Armenia between April, 1916, and December, 1919. The general impression left by this simple story is that the disordered state of Bolshevik Russia is not so happy as its upholders would have us believe, nor quite so hopeless as its critics aver. Of atrocities Miss Barber saw nothing herself; she thinks that they are committed by both sides, and do not in themselves justify the support of either party.

[3] *Essentials of Human Physiology*. By D. Noël Paton, M.D., B.Sc., LL.D., F.R.S. Fifth edition, revised and enlarged. Edinburgh: W. Green and Son, Ltd. 1920. (Demy 8vo, pp. 698; 252 figures. 25s. net.)

[4] *A Textbook of Surgery*. By W. Q. Wood, M.D., F.R.C.S.Edin. Edinburgh: James Galloway. 1919. (Cr. 8vo, pp. viii + 554. 15s.)

[5] *Il Morbo di Recklinghausen*. By Professor Dott. Nina Samaja, Libero docente di Patologia speciale nella R. Universita di Bologna. Milan: Societa Editrice Libraria. 1919. (Sup. roy. 8vo, pp. 85; 9 plates. 12 lire.)

[6] *A British Nurse in Bolshevik Russia*. By Margaret H. Barber. London: A. F. Fifield. 1920. (Cr. 8vo, pp. 61; 1 photograph. 1s. 6d. net.)

BIOMETRIC AND EUGENIC LABORATORIES AT UNIVERSITY COLLEGE.

THE new building given by Sir Herbert Bartlett, Bt., to the Department of Applied Statistics formed by the Drapers' Company and Galton Laboratories at University College, London, was opened on June 4th by the Minister of Health. The Drapers' Company Biometric Laboratory was instituted under the direction of Professor Karl Pearson in 1904; it is a research laboratory and training school in the modern mathematical theory of statistics. The Galton Laboratory for National Eugenics was instituted in 1905, and was, by Sir Francis Galton's wish, associated with the other. When Sir Francis Galton died in 1911 he bequeathed a large part of his estate to found the Galton professorship, and Professor Karl Pearson was appointed to the chair. At the same time the Senate of the University appealed for funds for building and equipment, and Sir Herbert Bartlett came forward with an offer to provide the building on a site at the north-west front of the college. During the war the new building was used as a military hospital, and only now has the Department been able to take full possession. On the ground floor of the building is a large museum for the illustration of heredity, statistical processes, and social problems, a lecture theatre, a room for the exhibition of Galton relics and apparatus, and an anthropometric laboratory. On the first floor there are laboratories, a library, and a common room, and on the second a photographic studio, a large room for biometric workers in craniometry, and rooms for archives and instruments. The apartments in all number over twenty, and it was announced that a site has been reserved for extension, which will include animal breeding accommodation.

The Vice-Chancellor of the University (Dr. RUSSELL WELLS), who presided over the opening ceremony, said that statistics, properly understood, was one of the most difficult and advanced of mathematical studies, but it was a dangerous weapon in the hands of the partially educated. Medicine in particular had suffered greatly from its misuse. The method introduced by Professor Karl Pearson would make it possible to arrive at the proof of many complicated medical problems. He himself had a paper in the BRITISH MEDICAL JOURNAL of May 29th in which he had

used the formula for correlation which Professor Karl Pearson had evolved. In sketching the history of the department, he reminded the audience of Florence Nightingale's well known interest in statistics, and of her desire to found a professorship of applied statistics at University College, for which, however, her means were not sufficient. It was not until the generous provision of the Drapers' Company was made that a start became possible. Incidentally, the munificence of the City companies in educational matters had been such that the universities should be the first to defend those ancient bodies against popular cynicism.

Dr. ADDISON gave an appreciation of the value of statistics which he had discovered when Minister of Munitions. There were few branches of public service with greater scope for the trained statistician than that of communal health, but here and in social science many statistics had been of a thoroughly incomplete and unsatisfactory nature. He commended to the support of the public the further appeal which University College was making to maintain and complete the equipment of the new building.

The Provost (Sir GREGORY FOSTER) expressed the thanks of those present to Dr. Addison. The thanks of the University to Sir Herbert Bartlett for his gift were expressed by the Vice-Chairman of the College Committee (Dr. J. BOURNE BENSON), who said that while a number of people were ready to endow a scholarship or a chair, few were ready to find the building in which it could have space. Professor KARL PEARSON said that one English monarch for whom he had a reverential regard was Henry VI. He saluted his statue whenever he crossed the lawn at King's College, Cambridge. In the fifteenth century it was possible to spend money on wars in France or on the founding of monasteries, but Henry chose to found King's College. And to encourage learning was still the surest way to secure that one's name was held in honour through grateful generations.

FUTURE PROVISION OF MEDICAL SERVICES.

LORD DAWSON ON THE CONSULTATIVE COUNCIL'S REPORT.

LORD DAWSON OF PENN, G.C.V.O., M.D., addressed the Stratford Division of the British Medical Association on June 3rd on the subject of the interim report of the Consultative Medical Council. The meeting was held in the Educational Offices at Stratford, with Dr. FRANK CHALLANS in the chair. About sixty members of the profession were present, and the greatest interest was manifested; in spite of the late hour at which the meeting terminated (11.30 p.m.), all but a very few remained to the end to hear Lord Dawson's reply.

Lord DAWSON, in acknowledging the Chairman's congratulations on his recent honour, said he regarded that honour not so much as a recognition of any services of his own, but as marking a desire on the part of the State to see the profession take a more prominent part in the affairs of the body politic. The individualistic attitude which the profession had taken in the past was very natural. Medicine was an exhausting profession, taxing the mental and physical resources to the utmost, and very little energy was left for other interests. By tradition and habit, therefore, the profession had been content to look at matters from the individualistic point of view. But it was now compelled to take the communal outlook. During the last fifteen or twenty years there had been a distinct tendency to set up communal organization for securing the health of the people. One result was to draw a line through the profession; on one side of the line were the men who continued to do their work in the old individualistic way, and on the other side were the men engaged in communal work, and the tendency was for one piece of work after another to be transferred from private practitioners to salaried officials of the State.

What had led to the investigation and report of the Consultative Council was, in the first place, the almost universal conviction that the *status quo* could not continue. However much men might disagree as to what changes in organization were required, there could be no difference of opinion as to the evident fact that the machine was outworn. The public was placing a higher value on health than formerly. The health of the citizen was now seen to be of supreme importance, and it was agreed that organized measures must be taken for securing it. A series of whole-time services had been set up one by one. The school service, for example, had become almost a detached service, with a certain number of doctors earning their living entirely as school medical officers. More recently there was set up a tuberculosis service, then a venereal service, and last, in point of time, a maternity service. The second evident fact was that medical men to-day were not in a position to do or give the best for their patients along purely individual lines. In his hospital days a man had every facility for following up his cases in the various departments; he could look at the *x*-ray image, he could see the testing of the secretions, and he could go into the operating theatre and the *post-mortem* room. He had the opportunity throughout of maintaining a high standard of intellectual interest. On going into practice, however, this man dropped suddenly down to the limited opportunities of a surgery in a private house, and when he went to the homes of the people the social surroundings were often such that he could not do his best. That drop got deeper and deeper as time went on, and the astonishment to him (Lord Dawson) was—and it was a great tribute to the clinical sense of the profession—that the men in practice kept up so high a standard as they did. It was clear, therefore, that the practice of medicine right through the community must have proper organization and provision.

These considerations led up to the reference to the Consultative Council. The Insurance Act was one endeavour to bring medical treatment within the reach of the people more completely than before, but if the best means for the treatment of the community were to be made available the range of benefit must not be restricted to insured persons. The State could not be asked to make those means available only for one section of the community. The reference to the Consultative Council was therefore to suggest ways whereby the medical services of the country could be so systematized as to provide what should be made reasonably available for all members of the community.

Lord Dawson then quoted from the report to show that the recommendations were designed to secure: (1) The provision of buildings and equipment; (2) services correlated and made available for all; (3) opportunity for practitioners to do their best work and further their knowledge; (4) co-ordination of preventive and curative medicine; and (5) freedom of action for doctor and patient. It was difficult to combine all these ideals. If the point of view of the administrator alone were considered, recourse would be to a whole-time service. But that was felt not to be the best thing in the interest of the health of the community. The correlation of preventive and curative medicine was most important, and at present the general practitioner was not identified closely enough with prevention and with the maintenance of communal health. He had yet to be brought into contact with the preventive services. The higher posts in such services must necessarily be in the hands of specialists, but the practitioner, nevertheless, must somehow be identified with preventive work. With the advance of knowledge, the line of demarcation between prevention and cure became increasingly blurred. A further principle upon which the Council had acted was that the work of a district should as far as possible be performed by the doctors of that district—(Hear, hear)—who should be paid on a part-time basis. This in itself would bring preventive medicine more under the ken of the general practitioner. Then it was realized also that the practitioners must have opportunities of following up cases and investigating disease from different standpoints. The work of medicine was becoming less the work of an individual, more the work of a team, and a team could only work together in the same harness. An increase of institutional provision was therefore indicated. Although domiciliary treatment of illness was and must remain the larger part of practice, it required supplementing by institutional provision, access to which should be afforded to the doctors of the district. It was fully realized that what was suggested was something new; there was no experience from any other country to guide them; indeed, other countries were

watching the experiment with a view to imitating it. The scheme could only be built up if the profession showed its warm approval, and, moreover, it could only be built up step by step, but the laying of the first stones was of importance; apart from any further erection they lent themselves immediately to good service in the locality, but they also provided the groundwork for the larger edifice presently to follow. (Applause.)

The term "health centre" was employed because something bigger and more embracing was desired than the term "hospital." The centre might be defined as an organization to bring together the curative and preventive services of a given district. In a typical instance it might contain fifty beds, with certain clinical accommodation where consultations might take place and patients be seen other than those in the beds; also a radiographic room, a laboratory and other departments, and a common room, where doctors could hold meetings. The essential thing about the primary health centre was that it should be staffed by the general practitioners of the district, and that when a patient left his home and went into the clinic he would be followed there by his own doctor. The primary health centres in a given area would be connected up with a secondary centre, which instead of being staffed by general practitioners, would be staffed by consultants, or by general practitioners acting in a consultative capacity. Then, to complete this ideal arrangement, the secondary centres would be linked up with a teaching hospital, which would be scheduled as a national institution with a "zone of influence" attaching to it. Primary health centres in Bedfordshire, for example, would be linked up with secondary centres at, say, Bedford and elsewhere, and these, somewhat loosely, with the teaching hospital at Cambridge.

The question of payment was, he admitted, an important and complicated one. It was impossible to proceed as though the Insurance Act were not in existence, with over 80 per cent. of the doctors serving under it. He imagined that the insured person would be provided for in the primary health centre, but the idea of the Council was that these institutions must be available to all, insured and non-insured. The complete upheaval of our social life as a consequence of the war had to be reckoned with, and the professional man with £800 a year and three children to keep and educate was a poor man to-day. Furthermore, it had to be remembered that every advance in medical science increased the cost of treatment. As medicine became more complex, it became more a matter of team work, and on t is account and on account of equipment, the cost went up. And with the increase of cost, the number of people in the community able completely to pay for it correspondingly diminished. At the present time the medical profession was working without adequate equipment, which should be set up and made available for all classes. The provision had to be made all-embracing, and the only way in which he saw that this could be done was by having standard rates. But this matter must be left vague for the present; it was undesirable to be in a hurry to go into details. In view of the difficulties which arose out of the desire to preserve freedom of relationship between doctor and patient, and the obvious argument of the administrator that it would be easier to set up a whole-time civil medical service and have done with it, the first thing to consider was whether the profession did desire to preserve the principle of freedom as between doctor and patient. The men detached from practice, he believed, were more likely to urge the alternative of whole-time State service than were the men in practice, but it was a question for discussion. A State medical service was at present coming into this country by stealth. Each time the State set up a new *ad hoc* salaried service it was lopping off something from the responsibilities and duties of the private doctor.

As for the proposed arrangement now put forward, he thought it would simplify matters if the subject was looked at from an extra-London point of view. To a large extent the report left London alone for the present. London had special difficulties arising partly out of its bulk and partly out of the complexity of its administration. If the difficulties in smaller places could first be solved it would be easier to apply the scheme to the great province of London. Further, he did not believe that any thinking person wanted the Ministry of Health to "run" the health of the community from Whitehall. The Ministry of Health should only be guide, philosopher, and friend, and, he hoped, benefactor. It was not for him to say at the present juncture what the composition of the local authority responsible for the arrangements should be; they did not want to be drawn, if they could help it, into controversies affecting local government. But any local authority charged with this duty had to fulfil certain conditions: It had to be the one authority for all matters concerning health; it had to be responsible for a considerable area so as to secure the best men and to get away from local politics; and it should admit also of interaction between town and country. The medical profession as such should be represented on the local authority, on the principle of vocational representation. On all such authorities there should be a co-opted minority consisting of the people who were specially expert in health matters.

Lord Dawson more than once in his exposition had offered to desist from speaking in order to allow fuller opportunity for discussion, but the meeting signified its desire that he should continue, and the lateness of the hour then precluded a formal debate. But a number of questions were asked from the audience and were answered by Lord Dawson at the close. Practically all those who made any remarks in the discussion declared emphatically against a whole-time State medical service.

Dr. ALFRED COX (the Medical Secretary) declared himself a hearty supporter of the Council's report. It embodied many ideas which the British Medical Association had been laying down for the last five or six years. He supported the report in the first place because it gave the public something very much better than the public had at present, and in the second place because it enabled the profession to stave off the demand made by academic people and others to nationalize the medical profession. He noticed that the press—with the very few exceptions which might have been anticipated—was heartily in favour of the report also. It seemed to be generally agreed that freedom of choice was a good thing to preserve. The report, however, must have popular force behind it, and as a beginning, on which the Stratford Division was to be congratulated, he wanted Lord Dawson to go away feeling that the general sense of that first meeting was thoroughly in favour of the report. (Applause.)

Dr. PERCY ROSE said that the meeting ought to have some practical outcome in the form of a resolution, and accordingly he moved:

> That the medical practitioners of the Stratford Division be asked to form committees in each sanitary area entering into the Division, with the following objects:
>
> 1. To ascertain in each area what are the facilities for preventive and curative medicine at present existing.
> 2. To recommend what steps might be taken to improve the medical services of each a ea on the lines laid down in the Interim Report of the Consultative Council on Medical and Allied Services, 1920.
> 3. To send a copy of their report on items 1 and 2 to the Honorary Secretary of the Division not later than October 31st of this year.

The resolution was seconded and unanimously adopted.

Dr. H. S. BEADLES criticized the primary health centre on the ground that a primary centre could hardly be one containing beds. He thought that a beginning might be made with something smaller than had been indicated.

One or two other speakers asked whether there would not be danger of the local authority imposing schemes upon the local medical profession.

Lord DAWSON, before replying to the questions, said that he thought the profession owed a great debt of gratitude to Dr. Addison for the liberality with which he had approached this subject. (Hear, hear.) Dr. Addison's suggestion that an interim report should be published showed how anxious he was to have the benefit of the collective wisdom of the profession in the steps which had to be taken. A good many of the comments which had been made could be met by the reply that this was an interim report, and that it was meant to show the trend of thought of the Council rather than to embody final conclusions. No one supposed that the institutions he had outlined were going to be set up at once. They might take years, but the important thing was to be aware of the direction. A big view must be taken and time given for the scheme to fructify. The clinics were not bound to be on rigid lines, and a collective surgery was within the four corners of the scheme. As for free choice of doctor, the desire for this was rooted in the English

people. There was no profession more individual than theirs, and none in which personal harmony between the professional man and his client was so necessary. The primary health centre had been criticized on the ground that it was too large, but it would not be possible to get the efficiency they wanted save in institutions above a certain size; moreover, they wanted something which would create a motive for bringing men together. In conclusion, he hoped that the profession would realize the importance of the present issue. Medicine had the opportunity to make its voice heard in the putting forward of a collective policy. A clear vision of the needs of the future was needed, and boldness and comprehensiveness in meeting those needs. The profession must stand united on essentials, and have no useless disputation over non-essentials; it must realize also that its strength and interests alike lay in the study of the public weal. The profession would then go on to ever-increasing influence and esteem. (Applause.)

A vote of thanks was accorded to Lord Dawson by acclamation.

VITAL STATISTICS OF ENGLAND AND WALES.

(*Continued from p. 775.*)

CANCER MORTALITY.

IN 1918 there were recorded 41,227 deaths from cancer—18,078 among males, including 443 in non-civilians, and 23,149 among females; for both sexes these figures imply the highest crude mortalities yet recorded. Of the 41,227 deaths, 27,080 were ascribed to carcinoma, 2,175 to sarcoma, and 11,972 to "cancer." The standardized mortality rates were 953 per million among male civilians, 986 among females, and 969 among all civilian persons, as compared with rates of 914, 994, and 955 respectively in the years 1911–14. Owing to the limitation in 1918 of the statistics for males to the civilian population, on the assumption that cancer mortality of males at 15–45 has remained as in 1911–14 (as it has, substantially, at higher ages), the standardized mortality of males is reduced to 912 in 1918. It may thus be stated that since 1914 cancer mortality has shown no increase for either sex. The principal features of the tables showing the parts of the body affected by fatal cancer, and the mortality rates at different ages from cancer of various organs remain much the same year after year; for instance, the mortality of females from cancer of the portion of the alimentary canal above the stomach is a small fraction only of that among males, but females suffer more from intestinal cancer. There were 3,669 cases of cancer of the stomach and 1,841 of cancer of the rectum in males, but only 3,185 and 1,456 respectively in females. Among females there were 392 fatal cases of skin cancer as compared with 647 (of which, however, 195 occurred in the penis and scrotum) among males. The excess of cancer mortality in the female sex is dependent on diseases of the breast and generative organs; if such deaths are excluded among both sexes, deaths of females are reduced from 23,149 to 14,070, but those of males only from 18,078 to 17,242.

At the request of the Director of the Cancer Research Fund, and with the object of comparing institutional experience—in which in the majority of cases the causes of death have received *post-mortem* confirmation—with the certification of other cases of cancer in which this evidence has been lacking, separate tabular statements are given of deaths occurring in institutions. Dr. Stevenson remarks, however, that the institutional deaths cannot be assumed to be a fair sample of the whole; they are subject to some selection by age, and it is possible that there may be a greater relative frequency of cancer of certain sites among that section of the population which chiefly furnishes deaths reported from institutions.

TUMOURS NOT RETURNED AS MALIGNANT.

The deaths from tumours other than those ascribed to cancer or other malignant tumours are grouped together in a table which includes deaths from glioma, from uterine fibroid, fibromyoma and myoma, from ovarian cysts and cystadenoma, from laryngeal papilloma and from pancreatic cyst, as well as deaths ascribed to non-malignant tumours or tumours of unstated nature in any site; in all 2,032 deaths are included, of which 933 and 1,099 were returned as due to tumour of non-malignant and unascertained nature respectively.

Of the 1,099 cases of undetermined nature no less than 752 were cerebral tumours, regarding the nature of which it is difficult even in institutional practice to obtain precise information. An examination of the age distribution of the 347 tumours of undetermined nature affecting organs other than the brain showed that nearly 85 per cent. occurred after the age of 45, as compared with about 90 per cent. for cancer and 67 per cent. for benign tumours, so that a large proportion of this group may have been malignant. Of the 752 deaths from cerebral tumour of unstated nature, 434 occurred among persons below 35 years of age; many of these tumours may thus have been of non-malignant character. Deaths ascribed to non-malignant tumours were nearly thrice as numerous among females as among males. If, however, the large number of deaths from ovarian and uterine tumour be deducted, the male mortality in this group considerably exceeds the female; this is due to the frequency among males of fatal non-malignant tumours of the bladder and prostate. If every death ascribed to tumour of unascertained nature were assumed to be malignant, the cancer mortality figure would only be increased by 3 per cent.

VARIOLA AND VACCINIA.

The number of deaths from small-pox during 1918 was three, but the diagnosis was uncertain in two of them. One was a woman aged 50, whose death was attributed by a coroner's jury to fatty degeneration of the heart consequent upon toxic purpura, but the Local Government Board suspected haemorrhagic small-pox. In the one case in which there was no doubt, the patient was a girl aged 5 (a Belgian refugee), who apparently contracted the infection on a ship, as she developed the disease shortly after arrival in this country. The number of non-fatal cases of small-pox notified rose from 4 in 1917 to 63 in 1918.

Three deaths were assigned to vaccinia; two occurred in infancy, being associated in one instance with pneumonia, and in the other with bronchitis and cellulitis of the scrotum. A third death was of a male aged 18 years, returned as due to vaccinia of twenty-one days' and septicaemia of eight days' duration. In another case an infant aged 8 months, recently vaccinated, was certified as dying from erysipelas and pertussis. The death of one soldier from asthma after antityphoid inoculation was recorded but classed as asthma.

(*To be continued.*)

ROYAL MEDICAL BENEVOLENT FUND.

AT the meeting of the Committee, held on May 11th, 25 cases were considered and £218 8s. voted to 17 of the applicants. The following is a summary of some of the cases relieved:

Daughter, aged 60, of M.R.C.S.Eng. who died in 1875. Health very bad through overwork, which was voluntary, in an army canteen. She lives with a friend, and they share expenses. Applicant is a trained nurse. Income from shares £28, from property £25. Voted £12 in twelve instalments.

M.R.C.S.Eng., aged 79, widower, has two daughters, ages 43 and 41, living at home, the elder as housekeeper, the younger an artist, who earns a very precarious living; two other daughters are nurses, and contribute £32 each a year towards the home. Other income from investments £120, the capital of which cannot be used. Rent and rates £54 9s. Applicant in a very delicate state of health, as are the two daughters living at home. Voted £26 in twelve instalments.

Daughter, aged 68, of M.R.C.S.Eng. who died when applicant was a child. Had an accident a few years ago, and is now lame and unable to work. Only income an occasional gift from friends. Rent 7s. 6d. a week for one room. Relieved six times, £46. Voted £12 in twelve instalments.

Daughter, aged 35, of M.R.C.S.Eng. who died in 1906. Suffers from very bad health, and is now in a nursing home, and her sister has to pay all expenses, which she cannot afford to do. Applicant quite incapable to work. Relieved three times, £45. Voted £18 in twelve instalments.

Widow, aged 46, of M.B.Glas. who died in 1910. Has one son, aged 12, at school. Was left unprovided for, and is now making a living by letting rooms. Last year she received £168 by this. Rent and rates £68. Finds she cannot manage owing to the high cost of living. Relieved once, £10. Voted £10 in two instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, C.B., F.R.C.S., at 11, Chandos Street, Cavendish Square, London, W. 1.

British Medical Journal.

SATURDAY, JUNE 12TH, 1920.

THE GALTON CHAIR OF NATIONAL EUGENICS.

ELSEWHERE in this issue we describe the formal opening by the Minister of Health of the new institute of eugenics and applied statistics in the University of London. The new buildings are the outward and visible sign of a movement of scientific opinion which has already affected all the biological sciences in this country, medicine and sociology in particular, and will affect their development to an increasing degree in the future. The movement dates from 1895, when Professor Karl Pearson, then Professor of Applied Mathematics at University College, delivered a course on the mathematical theory of statistics. This was the beginning of the Biometric School in which he gathered about him a small band of workers, men and women who shared his enthusiasm. The doctrine to be spread was that statistics in one form or another are fundamental in nearly every branch of science in the same manner that mathematics are fundamental in astronomy and physics. Like all innovations, the new doctrine incurred opposition and even ridicule. This was not surprising, since it implied that inadequate and even erroneous processes were being employed in medicine, anthropology, and sociology, and that new and sounder technical methods must be learnt and used. Criticism was met by hard work, and ridicule with the rapier of fact. From the first the new school had the sympathy of a few, among whom Francis Galton and Weldon were the chief. Professor Pearson proved himself a first class fighting man; the courage and skill with which he defended the new doctrine proved the strength of his conviction, and must have weighed with the Drapers' Company of the City of London in giving its support by way of an annual grant, which has been devoted to defraying the cost of the publication of a long series of *Research Memoirs*. The Eugenics Laboratory has also published a series of memoirs and lectures, and *Biometrika*, a journal founded in 1900 with the assistance of Professor Weldon and Sir Francis Galton, affords scope for publication of current memoirs from both laboratories.

The importance of the study of eugenics to a nation just emerged from a catastrophic war is sufficiently evident, and, had Professor Karl Pearson done no more than develop the ideas of Francis Galton in this department of research, his claim upon our gratitude would have been great. But the influence of the Galton professor has been wider than this. In his presidential address to the British Medical Association last year,[1] Sir Clifford Allbutt pointed out that statistics, once a byword, were becoming powerful instruments of medical research. That this is so is due far more to Professor Pearson than to any of his contemporaries or predecessors. A majority of those now applying statistical methods to medical problems were his pupils and all have been inspired by his publications.

The reason for this widespread influence is instructive. There have been in the past statisticians as deeply versed in mathematical science as Professor Pearson; there may even have been—although we cannot recall any name save that of Farr—as zealous and prolific researchers; but Professor Pearson stands alone in his mastery of the art of combining theory with practice. We recall a modern textbook of mathematical statistics by an eminent German professor which contains hundreds of equations but not, from cover to cover, a single arithmetical example of the manner in which these equations can be applied to practice. Professor Pearson has put forth many abstruse mathematical arguments, but he has never failed to illustrate them with arithmetical examples. The consequence is that all his papers can be consulted with some advantage by those whose training does not suffice to allow them to follow a purely mathematical argument. That a great mathematician should impose upon himself the heavy additional labour of rendering his work intelligible to the non-specialist is a matter for comment. It is an example which might well be followed by many specialists within our own profession whose temptations to remain obscure are much less strong.

This is not the place to particularize the many discoveries of importance to scientific medicine which Professor Pearson has made; sometimes the conclusions at which he has arrived have not been acceptable to all, but they have invariably been supported by arguments of great force luminously expressed. We know that we give expression to the opinion of all medical men when we assure Professor Pearson that members of our profession take a national pride in the work which he has done during the past twenty years, and express the hope that the newly established institute will, under his direction, continue to contribute to the advancement of those sciences of which he has been so devoted a servant.

We have here dwelt on the importance of the work the institute can do for medicine and its allied sciences, but similar work is as urgently needed in sociology and in economics. That it is needed also in commerce and industry is evidenced by the fact that the giver of the new buildings, Sir Henry Bartlett, is engaged in a pursuit which involves both. The new buildings are admirably adapted to their purpose, but they are imperfectly equipped and inadequately manned. The University has therefore authorized an appeal for an additional income of £5,000 a year in the form either of capital endowment or of annual grants. The Drapers' Company has been so well rewarded for the help it has given to this new and very important department of science that it may well be encouraged to do more, and we hope that other city companies will be prepared to follow its example.

SECURITY OF TENURE FOR HEALTH OFFICERS.

IT is a long cry back to 1904, but on reference to the files relating to the subject it appears that in October of that year the President of the Local Government Board was asked by the British Medical Association to include provision for security of tenure for medical officers of health in any public health legislation it might be contemplated to bring before Parliament at an early date. Since that time the fruits of victory

[1] *Proceedings of the Special Clinical and Scientific Meeting.* London, April 8th to 11th, 1919. London: The British Medical Association. (Demy 8vo, pp. xvi + 405.) The volume is published at the price of 3s., but copies will be supplied to members of the Association free on application to the Financial Secretary of the Association, 429, Strand, London, W.C.2.

have more than once been almost within the grasp of the Association, but a change of Government or some unexpected event has snatched them away and a fresh start has had to be made.

A Public Health Bill was prepared by the Association in 1906, but a deputation which had been arranged fell through because the Government went out of office. Further efforts at legislation were made in 1907, but the Association's bill had to be dropped. In 1908 the bill obtained a first reading, but got no further. An effort was then made to get security of tenure by means of amendments in the Housing and Town Planning Bill in 1909, but these were ruled out of order. In 1912 a new bill was prepared, but parliamentary congestion prevented its introduction; in 1913 a bill was again read for the first time, but eventually dropped. Meanwhile, with the able assistance of Sir Philip Magnus, valuable spade-work was being done, and in June, 1914, a large and influential deputation, consisting of members of the Association, medical officers of health, sanitary inspectors, and members of the Housing and Town Planning Association, together with other influential persons, was received by the Chancellor of the Exchequer, the President of the Local Government Board, and the President of the Board of Education. This deputation was introduced by Sir Philip Magnus and Dr. Addison. Promises were then given which were considered entirely satisfactory, and an Order granting security of tenure was actually drafted when the war intervened, and again the clock was put back. Recently, however, the Association, feeling that public health affairs were returning to their normal state, wrote to the Minister of Health reminding him of the promises made to the deputation and asking when effect would be given to them. Sir Philip Magnus also took the matter in hand, and he has received from Dr. Addison the following letter, which seems to indicate that the long struggle has at last ended successfully: "I have looked into the question of giving security of tenure to medical officers of health who give their whole time to public work. I find that the Local Government Board had an Order prepared to give effect to the promise which was made to you in this matter, but that it was not issued, partly because of the disorganization of the medical services of local authorities due to the war and partly because of the doubt whether security of tenure could be given to existing officers who were appointed for limited periods. Now that the medical staff of local authorities is restored to its normal strength, I will have the Order proceeded with, and will go as far as I can in giving security to whole-time medical officers. I propose to include sanitary inspectors and inspectors of nuisances in the Order on the same terms."

Intimately wrapped up with security of tenure has been the question of superannuation for public health officers, and there are not wanting signs that this question will soon be settled on a satisfactory basis.

The thanks of the Association and of medical officers of health are due first of all to Dr. Herbert Jones of Hereford, who has been the pioneer of the movement, the chief draughtsman of most of the memorandums and petitions on the subject, and the chief spokesman on many occasions. He may well feel proud of his share in this achievement. Sir Philip Magnus's parliamentary work has been invaluable, and he has shown a persistence, a sympathetic interest in the subject, and a perception of the right time to act which have added greatly to the debt the medical profession already owed him. Dr. Addison's action will be gratefully recognized by the profession. As an unofficial member of Parliament he did all he could to further this reform. Now, when in a position to do so, he gives effect to it.

THE COMPOSITION OF SALVARSAN.

THE position of salvarsan is in some ways unique. Represented as an organic compound of definite structure, it yet exhibits, in different samples, variations of toxicity so considerable that a rigid biological control of the properties of every batch is essential. Although these variations are the result of inappreciable and uncontrollable differences in the process of manufacture, their basis must ultimately be chemical, even though they may be due not so much to the presence of impurities which are toxic in themselves, as to small changes in the physical properties of the product, which small fluctuations in the proportion of certain by-products entail. Any further light on the chemistry of salvarsan, as prepared on the large scale and issued for therapeutic use, is therefore greatly to be welcomed. The important paper by Fargher and Pyman,[1] which was recently issued from the Wellcome Laboratories, probably contains, in condensed form, the most extensive account hitherto published of the chemistry of the commercial product, and of the directions in which it differs from the substance represented by the theoretical formula.

The most interesting and illuminating section of the paper is that dealing with the sulphur content of salvarsan. Ehrlich and Bertheim had mentioned the formation of toxic impurities during the reduction by hyposulphite, in which sulphur was attached to the arsenic of the molecule, and had prescribed the addition of magnesium chloride to the reduction bath to prevent this; the recommendation has always been obscure, and is not here dealt with. Fargher and Pyman, however, seem to have been the first to recognize that all specimens of salvarsan prepared by the hyposulphite process contain sulphur in varying proportions. This observation they had privately communicated to the Salvarsan Committee,[2] and it had been independently noted by American workers since then. They are now able to describe the separation from commercial salvarsan of a small proportion of a definite compound, in which the sulphur is attached to one of the amino groups as a sulphamic acid. The remainder of the sulphur they suppose, with Ehrlich and Bertheim, to be attached to the arsenic, though they suggest that some may be in merely physical association with salvarsan.

It would seem, then, that salvarsan as ordinarily made by reducing nitro-hydroxy-arsenobenzene with hyposulphite, includes small but varying proportions of at least two sulphur-containing compounds, which are not represented in the familiar formula. It should be added that there is no clear evidence that these by-products increase the toxicity of the preparation; on the contrary, as mentioned in the Salvarsan Committee's report above quoted, a sample of very pure "606," prepared by Dr. Pyman with the aid of hypophosphorous acid as reducing agent, and therefore quite free from sulphur, was deficient in solubility and more toxic than the ordinary less pure product. But whether such by-products are harmful, or, as seems possible, have in certain proportions a beneficial effect on the properties of the product, a clearer definition of their nature and the isolation of one of them mark an important advance in our knowledge of this wonderful remedy.

[1] *Transactions of the Chemical Society*, 1920 (vol. 117, p. 370).
[2] Medical Research Committee Special Reports, No. 44.

BIRTHDAY HONOURS.

PERHAPS the most interesting statement in the birthday honours list is that the honour of knighthood to Professor Frederick William Andrewes is bestowed "for valuable work in medical research." Never was the reason for giving an honour more succinctly and truly stated, for Professor Andrewes, whether as an observer, experimenter, or critic, wields a great influence in the study and teaching of pathology in this country. The K.B.E. is conferred on Dr. J. Dundas Grant, president of the special aural board at the Ministry of Pensions, and well known otherwise as an aural surgeon; on Mr. Arnold Lawson, ophthalmic surgeon to the Middlesex Hospital, in recognition of his work as ophthalmic surgeon to St. Dunstan's Hostel for the Blind; and on Colonel William Taylor, C.B., A.M.S., who became consulting surgeon to the forces in Ireland in 1916, and is an ex-president of the Royal College of Surgeons in Ireland. The honour of knighthood is conferred on Dr. S. R. Alexander, mayor of Faversham 1908–19, for his public and municipal services; on Dr. Sydney Beauchamp, who was resident medical officer to the British delegation during nearly the whole of the peace conference in Paris; on Alderman Charles O'Brien Harding, L.R.C.P., mayor of Eastbourne in 1903 and from 1906–19; and on Colonel H. E. Banatvala, C.S.I., I.M.S., late Inspector-General, Civil Hospitals, Assam. The Kaisar-i-Hind medal for public services in India has been received by Dr. D. H. Mehta, medical officer Patao Hospital, Baroda, and Dr. S. R. Moolgavkar, principal medical officer Bikaner State, Rajputana.

PSYCHOLOGY AND MENTAL PATHOLOGY.

THE notes of the three lectures on psychology Professor Janet delivered in London for the University of London (published in the JOURNAL of June 5th) will have been sufficient to show that he is an apostle of behaviourism in its most extreme aspect. He adopts the view that our body is an instrument which receives movement from the outside and restores it to the external world. The brain differs from other parts of the body in that it does not always reproduce the energy it receives immediately in movement, but may store it up for ulterior movements. The body and brain together are an instrument of movement and nothing else; and in movement we must not look for anything else than what is observable. If the brain is diseased, it is only its movement and nothing else that is affected. So far the dynamic view of Janet follows the views of Bergson, but Bergson parts company when Janet denies that material movements can produce psychical or conscious life. So long as it is recognized that a consistent physical view such as that advocated by Janet is a methodological abstraction there is little to be urged against it. It is in agreement with the view of Münsterberg, who also is of opinion that the whole of psychology is a temporary stopgap by which we eke out our defective physiology, and that sooner or later it must cease to be of use and therefore cease to exist as physiology advances. Nor does it lay itself open to the reproaches that Avernarius has heaped on the "introjectionist" transformation of the naïvely realistic standpoint. It may well be that for the purposes of the physician the study of movements or behaviour afford the only safe data for the elucidation of mental disease. We must, however, be prepared to pay a price—teleological unity of interest or purpose must be ruthlessly banished from the study of psychology. The ethical appreciation of human conduct and the historical interpretation of it in terms of ends and ideals becomes impossible, for they can only be expressed in teleological terms, and we suspect the same limitations will be found to apply to aesthetics. We can hardly quarrel with the tendency of the English and Scottish school which resolutely refuses to thus limit its terms of reference. A methodological survey of the scope of medical psychology is of urgent importance; Professor Janet has clearly defined his attitude, and we would welcome some similar pronouncement on the part of our own teachers of psychotherapy.

OPERATION FOR ARTERIAL EMBOLISM.

THE treatment of arterial embolism by operation and removal of the embolus appears to have been first attempted in 1895, by Ssabanjeff, in the femoral artery; so far as the lesser circulation is concerned, the extraction of a pulmonary embolus was first attempted in 1907 by Trendelenburg. In neither instance was the operation successful. Dr. H. Sundberg[1] has collected from the literature twenty cases of operation on arteries for embolism, with six successes, four of them, including his own case, achieved by Swedish surgeons. His patient was a landholder aged 63, admitted to hospital with heart-failure; the heart's action was completely irregular, no murmur was identified, the blood pressure was 145 mm. Hg, the arteries were sclerosed, and digitalis and diuretin were given. Nine days later symptoms and signs of embolism of the left femoral artery suddenly appeared, and Sundberg concluded that the obstruction was at the point where the profunda femoris branches off from the femoral artery. He operated twelve hours after the onset, under local anaesthesia and one-fifth of a grain of morphine, exposing the arteries above and below their junction. The femoral artery was found to be filled with a solid mass extending 2 cm. above this point; an incision 2 cm. long was made into it opposite the origin of the profunda, and the proximal piece of clot was carefully withdrawn after clamping the free artery above. The profunda bled freely, and was clamped. Relaxation of the clamp on the femoral artery was followed immediately by free haemorrhage. The distal portion of the clot was then grasped with forceps and carefully withdrawn. It proved to be 86 cm. (almost 34 in.) in length, smooth, with a single short branch at about the bifurcation of the popliteal into the anterior and posterior tibial arteries; its distal end was even and smooth. Removal of this clot was followed by a gush of blood, and the vessel was clamped. The opening in the femoral artery was then sewn up, great care being taken to pass the needle through the external and middle coats only, and to leave the arterial intima untouched; very fine silk soaked in paraffin was used for the sutures. The three clamps were removed, no bleeding followed. Catgut subcutaneous sutures were inserted, and the wound closed. Five days later signs of thrombophlebitis appeared in the left calf, but this settled down in a fortnight. The patient was up and about six weeks after the operation, and presently returned to his home, writing thence two months later to say that he was well, and his left leg free from unpleasant feelings. Sundberg does not specify the nature of the embolus in his case; with regard to the clot, he remarks that it was of the same length as the patient's leg from the opening in the artery to the sole of the foot, and he quotes cases operated on fourteen and ten hours after the embolism, in which the clots found on operation were 12 and 3 cm. long respectively.

AN OUTBREAK OF PELLAGRA IN A REFUGEE CAMP.

THE Public Health Department of the Egyptian Ministry of the Interior has published a report by Dr. R. G. White, Deputy Director of the Public Health Laboratories, Cairo, on an outbreak of pellagra which occurred during 1916–17 in the Armenian refugee camp near Port Said. Armenians to the number of 4,058, including 700 adult males, were driven by the Turks from hillside villages near Antioch, and arrived in a debilitated and exhausted condition at the camp in September, 1915. The camp had an admirable water supply from the Port Said system and efficient

[1] *Hygiea*, Stockholm, 1920, lxxxii, 1.

sanitation. In February, 1916, the first manifestations of pellagra appeared in the form of gastro-enteritis, stomatitis, and gingivitis; parotid swelling was uncommon. Two months later dermatitis was noted, and early in May the outbreak was recognized to be pellagra. The skin lesions noticed were symmetrical erythematous dermatitis of the hands, feet, face, and neck; the demarcation lines showed a raised edge. In severe cases anaemia, cachexia, and nervous symptoms supervened; the mortality was about 4.7 per cent. of those affected. Bacteriological examination of the skin lesions, buccal secretions, and excreta showed nothing of importance, and *Simulidae*, or other blood-sucking insects, were not found near the camp. Blood examinations showed slight neutrophilia, with a small relative increase of myelocytes, metamyelocytes, and rod-nucleated cells. The refugees came from a district where pellagra is unknown, and Dr. White regrets that, owing to the insufficiency of the medical staff, it was not possible to make fuller investigations of the origin of the epidemic. It is clear, however, from the report that the disease was primarily due to a faulty dietary. During the first six months after the arrival of the refugees the ration issued was far from sufficient, and their means of adding to it were unsatisfactory; it was at the end of this time that pellagrous symptoms were noted. During a period when the men received employment outside the camp and were able to supplement the official rations a great improvement became evident, and the number of new cases was diminished. When this employment ceased and the refugees had to depend on the official dietary, the disease recurred in a more severe form. In February, 1917, a full ration was issued to all occupants of the camp irrespective of any additions they might themselves be able to make; a special ration was issued to those showing any signs of pellagra, and special meals were served to the children. As a consequence of these measures no new case of pellagra was seen after June, 1917. It was not found possible to establish with any precision the existence of dietetic factors to the presence or deficiency of which the outbreak could be attributed. It was concluded that the consumption of maize—which in the early months formed 25 per cent. of the flour used—could only have been a factor in the causation of the outbreak in so far as it was responsible for some deficiency in the diet; it had no direct causal relation to the disease. The composition of the daily diet of the adult male in the period preceding the epidemic was: Protein 47.6 grams, biological value 23 grams (approximately 95 per cent. from vegetable sources); fat, 26 grams; carbohydrates, 449 grams; heat value, 2,280 kilo-calories. It is possible that the very low fat value of this diet was of importance in the causation of the outbreak. Dr. W. H. Wilson points out that the lesions of pellagra appear in tissues such as the skin and nervous system, where fats are specially important. 83 per cent. of the fat of the diet was derived from vegetable sources; it included 23 per cent. of cottonseed oil, which the Armenians (who had been accustomed to olive oil) disliked. It is interesting to note that at Alexandria, in an encampment of Jewish refugees from Palestine, who did not exhibit such a dislike and partook freely of the same oil, no pellagra occurred. But this observation does not throw much light on the matter, for their bread was not mixed with maize, and they were able to supplement their official ration by purchases made from their earnings.

ADVANCED CANCER OF THE CERVIX RENDERED OPERABLE BY RADIUM THERAPY.

IT is a matter of common experience that the great majority of cases of cancer of the cervix uteri when first seen by the surgeon have already reached the inoperable stage. Occasionally this may be attributable to the omission of the medical attendant, before prescribing treatment for cases of irregular haemorrhage or discharge, to make a local examination; usually, however, it is due to the neglect of the patient to seek medical advice at the time of the appearance of the earliest symptoms. Many reports have been made of the palliative application of radium in inoperable cases;[1] as a rule there has resulted a shrinkage of the growth and its extensions, together with abatement or disappearance of the chief symptoms; although recurrences or relapses have usually followed, the patients have gained at least twelve months' extension of life. Few instances, however, have been reported of radium therapy used with the purpose of making it possible subsequently to perform hysterectomy by Wertheim's method; particular interest, therefore, attaches to the experience recorded by Dr. Fletcher Shaw and Dr. Arthur Burrows, of Manchester, at the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, on June 3rd. Dr. Fletcher Shaw attempted to perform wide hysterectomy in fourteen cases in which radium had been applied two months previously, at a time when the cancerous condition appeared to be inoperable. In six of these cases operation had to be abandoned on account of the presence of scar tissue, of cartilaginous consistency, which was found to adhere to the ureters or bladder, and to prevent the dissection which is a necessary preliminary to wide hysterectomy. Of the remaining eight cases, one died two days after operation, as a consequence of intestinal obstruction; two exhibited recurrence within eighteen months; and five had remained well—six years, two and three-quarter years, one and three-quarter years, fourteen months, and ten months respectively after the operation. Formerly in inoperable cases, when the patient was opposed to radical measures, the combined treatment was not pressed; as a result of his experience, however, Dr. Fletcher Shaw now feels justified in speaking much more favourably of the results of radium therapy employed as a preparatory measure before operation. It is to be noted that of the patients in whom the combined treatment was completed all but one had passed the menopause. Dr. Burrows recommends the insertion for twenty-four hours of five or more $\frac{3}{10}$ mm. pointed platinum tubes; a larger central silver tube is introduced into the cervical canal. Not less than 240 mg. of radium bromide, corresponding to about 120 mg. of radium metal, or 120 millicuries of emanation, are used at one, two, or rarely three sittings. Among 150 cases of inoperable cancer of the cervix treated by radium up to 1917 he found that twenty-eight, or 20 per cent., became operable. Of his cases treated during the last two and a half years, 20 per cent. were well at the end of one year, and had nearly all become operable. Many other surgeons in operating after the application of radium have encountered difficulties, due to the presence—near the ureters especially—of dense, unyielding scar tissue, which, as a result of the action of radium emanations, has replaced neoplastic and inflammatory material. Dr. Fletcher Shaw and Dr. Burrows, as well as other gynaecologists who contributed to the discussion at the Royal Society of Medicine, proposed to consider the advisability of operating on the second day after the completion of the exposure to radium—that is to say, at a time when the destructive action of the emanation on the malignant cells has been completed and the hard hyaline fibrous tissue, which at operation makes dissection so difficult, has not yet been formed. In contemplating such a procedure, however, the risk of post-operative sloughing has to be taken into account. According to Dr. Burrows, the use of radium therapy is not advisable if the tumour be very voluminous, or if a large excavated ulcer is surrounded by a thin shell of damaged tissue; in such cases there is risk of extensive sloughing and formation of fistulous communications. Several surgeons have reported the formation, after application of radium, of fistulas between the vagina and the rectum, urethra, or bladder. Dr. Burrows believes that if excessive

[1] See the article on the report of work of the Radium Institute for 1919, BRITISH MEDICAL JOURNAL, May 8th, 1920, p. 642.

dosage is avoided and unsuitable cases are excluded from radium therapy these results occur in at least as small a proportion of treated as of untreated cases.

THE BATHS OF OLD LONDON.

THE spas, baths, and wells of old London were made the subject of an interesting antiquarian study by Dr. Sunderland a few years ago,[1] and more recently he has written an account[2] of the baths that were established in the metropolis in times long past. The oldest of these, and by a happy chance one of the very few survivors, is the old Roman spring bath or plunge bath in Strand Lane, near King's College. Thought to have been built in the time of Titus or Vespasian, it preserves what appears to be Roman masonry in its walls, and is supplied with a runnel of clear water coming from springs at Hampstead. In the year 1502 baths fed from the St. Agnes-le-Clair spring near St. Luke's Hospital were established; they fell into disuse in the middle of last century, and their site is now occupied by St. Agnes Terrace between City Road and Hoxton. The Templars' Bath, adjoining the Roman bath from which it obtained its water supply, was built by the Earl of Essex in 1588, and was used for three centuries by residents in the Temple; it was closed in 1893, and its site is now occupied by the larder of the Norfolk Hotel. Queen Elizabeth's bath in the King's Mews, near Charing Cross, thought to date from the fifteenth century, was destroyed only ninety years ago in the creation of Trafalgar Square. In addition to these four older baths, several other bathing pools were established in the seventeenth century, with varying fortune. Among these may be mentioned Peerless Pool, behind and north-west of St. Luke's Hospital, in the City Road, drained in 1850; the Cold Bath, at the north-west end of Tottenham Court Road; the Cold Bath, Clerkenwell, off Farringdon Street and near the river Fleet; a bath at Shadwell Spa, Wapping, recommended in 1745 for scorbutic and cutaneous disorders; Queen Anne's bath, fed by a chalybeate spring, at the back of what is now No. 35, Endell Street, Long Acre; and the Grotto Cold Bath in Marylebone, near the present Grotto Passage. The river Thames sported two floating baths as late as 1868, no doubt much like those now visible on the Seine in Paris, and Pepys makes mention of such a bath in 1688. Dr. Sunderland also catalogues a number of the "sweating baths" so common in the London of the later middle ages and subsequently; after a period of disuse they reappeared towards the end of the seventeenth century under the Italian name "Bagnio," to pursue a chequered and often scandalous career, ending in suppression. He adds a note to the effect that baths and washhouses for the working classes originated in 1844, thanks to the labours of an association for promoting cleanliness among the poor.

THE SERVICES OF THE ARMY MEDICAL DEPARTMENT.

WHAT the Earl of Midleton described as a public ovation—the only instance since the armistice of such a tribute to a particular branch of the army—was given in honour of the Royal Army Medical Department and its associated civilians on June 8th. The appreciation took the form of a dinner at the Connaught Rooms, when the single toast (apart from the loyal toast) was "The Royal Army Medical Department and the eminent civilians attached to it during the war." About 180 sat down at the tables, and the thirty hosts included many eminent administrators, both military and civil. Lord Midleton occupied the chair because, with the exception of Lord Lansdowne—one of the hosts, who was unable to be present—he was the senior in point of date of those who had held the office of Secretary of State for War. On his left hand was Mr. Winston Churchill, the present War Secretary, on his right the guest of the evening, Sir Alfred Keogh, and next to him Field-Marshal Earl Haig. Among those at the principal table were the Marquis of Salisbury, the Earl of Donoughmore, Earl Fitzwilliam, Viscount Burnham, Lord Dawson, Lord Horne, Lord Methuen, Lord Rawlinson, Sir William Babtie, Sir Anthony Bowlby, Sir John Goodwin, Sir Arbuthnot Lane, Sir George Makins, and Sir Arthur Sloggett; while among those presiding over the smaller tables were Lords Knutsford, Desborough, Somerleyton, Harris, Lee of Fareham, and Wavertree, Lord Edmund Talbot, Sir Arthur Stanley, Sir Herbert Creedy, Sir Ivor Philipps, and the secretary of the dinner committee, Sir Edward Ward. A message was read from the Duke of Connaught, expressing his pride at being colonel-in-chief of a corps which had rendered such great service to army and country, and there were other messages from Lord Derby (one of the hosts), Viscount French, and Lord Islington. The toast of the evening had three proposers—the Chairman, Mr. Churchill, and Lord Haig—and Sir Alfred Keogh, Sir John Goodwin, and Sir George Makins replied. A report of the speeches will appear in our next issue. During a visit to the Military Hospital at Millbank on June 8th the King inspected the memorial tablets placed in the recreation room. The tablets show the removal of a wounded man from a front line trench, a regimental aid post, a main dressing station, and a hospital train. The memorial inscription runs as follows: "This room was remodelled and the sculptures erected in appreciation of the devotion to duty of the R.A.M.C. and of their sufferings in the relief of suffering in the great war. The cost was defrayed out of a fund generously placed at the disposal of King George V by Major W. Keefer of Toronto—1914–1919." The King also visited the nursing home for senior officers at the hospital and invested General Gorgas, P.M.O. of the American army, with the insignia of K.C.M.G., in recognition of his services to the British Empire and to the commercial world, especially through the work he did as Chief Health Officer during the construction of the Panama Canal. We regret to learn that General Gorgas is a patient in the hospital, and hope for his speedy recovery.

NAVAL MEDICINE AT THE IMPERIAL WAR MUSEUM.

IN the Naval Medical Section of the Imperial War Museum, opened by His Majesty the King at the Crystal Palace on June 9th, the opportunity is afforded of learning something of medical treatment as carried out in specially difficult conditions of naval warfare. The naval section of the museum contains models, schematic sections, and photographs of hospital ships; a picture of such a ship at night, with abundant illumination, including a prominent red cross, is of interest when the fate of several British hospital ships is remembered. The disposition and treatment of the wounded within the combatant vessels are well illustrated in a series of noteworthy pictures by Jan Gordon and by Oswald Moser. Specimens are shown of the light-tight scuttle ventilators devised by Surgeon Commander M. H. Knapp; these admit air freely to well-lighted sick quarters, but preserve invisibility. Transport of the wounded is a matter of special importance in naval warfare, and examples are shown of the cots, cages, slings, and stretchers employed, as well as photographs of the internal arrangements of the naval ambulance train, which was described in our issue of July 27th, 1918. Preventive methods are illustrated by models of the special helmets, gloves, and clothing worn for "anti-flame" and "anti-flash" protection during action. An interesting exhibit shows the development of the naval respirator, which can be worn in three or four different positions, and in order to prevent deviation of the compass is provided with a container of brass. The museum contains numerous examples of medical appliances used in the German navy. Among these are a life-saving jacket, with a compressed air cylinder and a purifying chamber, and an apparatus for

[1] See the BRITISH MEDICAL JOURNAL, 1915, ii, 869.
[2] *Transactions* and Eighth Annual Report of the London Dermatological Society. London: J. Bale, Sons and Danielsson, Ltd. 1920. (Demy vo, pp. 75. 2s. 6d. net.)

delivering oxygen to four individuals; both these appliances are for use in submarines. The German sick-bay cot consists of an iron cage suspended from two metal uprights, and is extremely heavy as compared with that used in the British fleet. Bandages and lint made of paper, as well as a tourniquet in which indiarubber is replaced by a spring, are examples of expedients devised by the Germans to make up for their lack of raw materials.

Medical Notes in Parliament.

Proposed New Site for the University of London.

NUMEROUS questions have been addressed to the Minister of Education and to the Chancellor of the Exchequer in the House of Commons concerning the offer of a site of eleven and a half acres north of the British Museum, made by Mr. Fisher on behalf of the Government to the Senate of the University of London. Mr. Fisher, in his letter to Lord Rosebery on May 20th, said that the Government had at one time hoped to be able to provide the building as well as the site. This was before the war, however, and they could not, he said, undertake that expenditure in the fresh conditions. But the Government was prepared to make such provision as would secure the University from loss in respect of maintenance charges on the new site. The University now occupies quarters at the Imperial Institute under a Treasury minute of 1899, which not only provides for maintenance but frees it of rates and taxes. According to an unauthoritative estimate, to provide accommodation equal to that afforded at South Kensington would cost £4,000,000, and the buildings now contemplated might mean a liability for rates and taxes of between £60,000 and £80,000 a year. King's College was built upon a site granted by the Government on a lease for 999 years. The building was erected by public subscription, and the question whether the Senate is at liberty to sell has been raised.

In the House of Commons, on June 1st, Mr. Fisher said that the matter was still under negotiation, and he was therefore not able to make any statement as to the price proposed to be paid to the Duke of Bedford. The Government, after full consideration, had decided that the Foundling Hospital site was less suitable. The Government was not attempting to force the University to accept the site. To the objection that so large an expenditure out of public funds should not be incurred at the present time, Mr. Fisher replied that there was the offset of the value of the site and buildings occupied in the Imperial Institute, and added that the buildings held by King's College would be liberated—which suggests that he assumed that the latter buildings were to be regarded as Government property.

On June 3rd Mr. Chamberlain told Sir W. Joynson-Hicks that when the two sites were considered before the war, it appeared that the cost of the Foundling Hospital site would be rather greater than that of the Bedford site. Sir W. Joynson-Hicks put it to the Chancellor that no suggestion had been made to the Foundling Hospital since the war, but Mr. Chamberlain responded that the Government had decided upon what it thought was the best site. He declined to answer an inquiry by Mr. Palmer as to whether the cost of the Bedford site was now a million sterling as compared with £367,000 before the war.

On June 7th Mr. Fisher, in reply to further questions, told the House of Commons that the Government had considered the possibilities of a number of sites, including the Foundling Hospital, a site south of the river between the new County Hall and Hungerford Bridge; another between Waterloo Bridge and Blackfriars Bridge, and also the feasibility of utilizing Somerset House, or of effecting an extension of the present university quarters in the Imperial Institute. Because the Government regarded the Bedford site as the most suitable, negotiations for properties less suitable were not opened. The site offered included four vacant plots, and as the majority of the leases would fall in at different periods after 1923, it would only come into occupation gradually, and it was not necessary therefore at this stage to attempt to estimate the number of persons who might eventually be displaced. The House would, he added, have an opportunity of discussing the matter when the Estimates for public works and buildings were taken.

Medical Practitioners and Motor Car Taxation.

Sir A. Sykes asked the Chancellor of the Exchequer, on June 3rd, whether he could see his way to make some rebate of the horse-power tax on motor cars in the case of medical practitioners, especially those who practise in rural areas, in view of the fact that their work necessitated the use of cars of considerable power, and left only a small margin of profit. Mr. Neal, Parliamentary Secretary to the Ministry of Transport, said the point had been very carefully considered, but, for the reasons stated in paragraph 23 of the Report of the Departmental Committee on the Taxation of Road Vehicles, the Minister of Transport was unable to recommend a rebate of the proposed taxation of motor vehicles in the case of those used by medical practitioners.

Medical Staff of Ministry of Health.—Mr. Spoor asked the Minister of Pensions, on June 3rd, whether his attention had been called to an advertisement issued by the Minister of Health, inviting medical men to apply for appointments in the Ministry of Health at salaries of £1,000, rising to £1,400 per annum, with pension rights, etc.; whether these appointments were calculated to draw medical officers from the Ministry of Pensions; and whether he could see his way to giving similar salaries and advantages to the medical staff employed by the Ministry of Pensions. Mr. Macpherson replied that his attention had been drawn to the advertisement, which related to certain appointments of a permanent character requiring special scientific qualifications. It was, of course, open to the medical members of his own staff to become candidates. He could not undertake to revise the scales of remuneration of the temporary medical service of the Ministry of Pensions, which were settled so recently as January of the present year. It was not yet possible to forecast the permanent medical arrangements which would be necessary for the purposes of the Ministry. Major Nall asked whether Mr. Macpherson was taking any steps to place disabled medical men in appointments such as this. Mr. Macpherson replied that quite a large number of disabled medical men, certainly men who had served, were now on the staff.

Health Insurance Finance.—Dr. Addison, on June 3rd, in answer to Major Barnes, said that the moneys accumulated under the National Health Insurance Acts up to March 31st, 1920, were as follows:

Investments in the hands of approved societies, or invested on their behalf under Section 56 of the Act of 1911 in securities selected by them, cost £29,000,000.

Investments in the hands of the National Debt Commissioners under Section 54 of the Act of 1911, cost £47,500,000.

Balances of cash in the several National Health Insurance Funds, and in the hands of approved societies and of Insurance Committees, £1,500,000.

The estimated liability in respect of contributions and State grants arising under the National Health Insurance Act, 1920, for the period July, 1920, to July, 1921, was £36,692,000, of which £14,400,000 would be payable by insured persons, £15,350,000 by their employers, and the balance, £6,942,000 out of moneys provided by Parliament.

Asked what would be the increased annual cost if sickness, disablement, and maternity benefits were increased by 140 per cent. over those provided by the Act of 1911, Dr. Addison said that the corresponding cost on the present actuarial basis of the scheme would be increased by £17,950,000, of which £3,400,000 would fall on the Exchequer and the balance on insured persons and their employers. If the benefits for women were on such increased basis made equal to those for men, the total cost would be still further increased by £2,600,000, of which £700,000 would be payable by the State.

Air Raid Claims.—Asked by Mr. Blair, on June 3rd, if a soldier on leave who lost his right arm by enemy action during an air raid was deprived of pension on the ground that his injury was not due to war service, Mr. Macpherson said that was so. If, however, the injury sustained led to the soldier's discharge he might be eligible for a gratuity. Such a man would be considered for training by the Ministry of Labour.

Pensions and Pensioners.—The number of persons receiving pensions in the United Kingdom in respect of disability or death in the present war is approximately 1,700,000, and in addition nearly 1,800,000 wives, children, and other persons dependent on pensioners are receiving allowances, thus making the total number of beneficiaries approximately 3,500,000. The precise number of persons receiving similar pensions or allowances in France is not available, but is said to be in excess of three millions. The number of persons in the employ of the British Ministry of Pensions is 24,892. The corresponding figure for France is not available. The cost of war pensions for the financial year 1920–21 is estimated at £118,211,000. This includes the cost of treatment but excludes administrative expenses.

Rabies in Imported Dogs.—The Ministry of Agriculture reports that two undoubted cases of rabies have occurred among dogs landed from abroad and undergoing quarantine, and a third highly suspicious case is under investigation. In both the cases confirmed as rabies the dogs were landed in an apparently healthy condition. In one case the disease manifested itself after two and a half months' quarantine, and in the other after a period of four months. In the circumstances the Ministry hold the increase in the period of quarantine to be fully justified No case of rabies has occurred in any animal liberated as healthy after undergoing the statutory period of quarantine.

Answers in Brief.

The number of administrative posts, including those strictly defined as executive, in the Ministry of Health, held by men with a salary of over £500 a year, is 103.

The number of soldiers in hospitals in the United Kingdom who are eligible for demobilization is about 5,000, and the daily cost £2,500. The War Office is satisfied that the hospital treatment is thoroughly adequate.

The total amount of income subject to tax before the deduction of the various personal reliefs and allowances was for the year 1913–14 about £950,000,000; for the year 1920–21 it is estimated that the amount will be in the neighbourhood of £2,200,000,000. Owing to changes in the law relating to income tax the basis of the estimates for the two years differs materially.

England and Wales.

FUTURE PROVISION OF MEDICAL SERVICES IN WALES.

THE report[1] of the Welsh Consultative Council on the provision of medical and allied services in Wales has now been issued. We were able last week (p. 781) to give an outline of the report and of its principal recommendations, to which little can be added except with regard to the recommendations for North Wales, which is largely a rural area. The Council recommends that the whole of North Wales, with the northern portions of Brecon, Cardigan, and Radnor, should be regarded as a single area, with large hospitals or institutes at three central places, of which Bangor and Wrexham are specified. There should also be available for the area a large asylum or mental home providing 1,000 beds, a mental deficiency home providing 300 or 400 beds on a site away from the asylum, a central tuberculosis sanatorium, with an adequate number of beds for North Wales, convalescent homes and rest or holiday homes to meet, in particular, the needs of mothers after confinement, provision for the blind and deaf, and for cripples, separate provision for epileptics, a fever hospital in or easily reached from each county, as well as a small-pox, plague, cholera, and dysentery hospital for North Wales. With regard to the local institutions in the various areas of North Wales, it is recommended that each should include, say, 20 beds for medical and surgical cases, a maternity ward, a school clinic, various clinics—for example, dental, tuberculosis, venereal, pediatric, psychiatric—a fully equipped outpatient department, and a hostel for nurses. "The staff of such an institution should include a fully qualified medical officer who, in addition to being the house-surgeon and house-physician, would also be in charge of the various clinics. The cases admitted to these hospitals would, however, be followed through by the general practitioners concerned." Such an institution might serve contiguous areas in the neighbouring counties. It is also recommended that further school and other clinics should be provided in such parts of a county as may not be conveniently served by the proposed local institutes; at these clinics the nurse or nurses in the district should reside and at least two beds should be available for such cases as can properly be dealt with at such institutions. In the selection of centres for these local clinics regard should be had to the character of the locality and not merely to the size of the population.

WELSH BOARD OF HEALTH.

The Welsh Board of Health is at present constituted as follows: Sir Thomas Hughes (Chairman), Dr. D. Llewelyn Williams (Medical Member); Mr. John Rowland, C.B.E., M.V.O. (Deputy Controller of Insurance for Wales); Mr. A. Lloyd Thomas (Housing Commissioner); with Mr. Percy E. Watkins (Secretary, Administrative Officer for Public Health and *ex officio* Member of the Board).

ADVERTISEMENTS FOR MEDICAL OFFICERS.

The Colchester Town Council on June 2nd discussed the salary of the new assistant medical officer of health and assistant school medical officer. The Education Committee recommended that a salary of £500 be offered for the post, but Councillor Jarmin proposed that this recommendation be sent back to the Education Committee for further consideration. He said the retiring assistant medical officer (Dr. Vercoe), who had served them well, had been receiving £375 and £25 war bonus, and there was no explanation, reason, or justification for increasing the salary by £100 beyond the fact that medical journals had refused to insert the advertisement unless £500 were offered. He thought there should have been a more weighty reason than that. Under their medical officer he thought a junior medical man would have been sufficient for the position, and there was no reason at all why a presumably young man should be offered £100 more than their retiring assistant medical officer. While they were turning down applications for increases in all directions, he thought that, as a matter of sheer consistency, they could not offer for a new appointment a salary of £100 more than a very able officer had been satisfied with. He moved that the recommendation be referred back with the observation that £400, including bonus, was sufficient commencing salary. Councillor Harris seconded. Alderman Blaxill (Chairman of the Education Committee), after paying a tribute to the services of the retiring assistant medical officer, said it was a fact that medical journals had declined to insert the advertisement for an assistant medical officer at a lesser salary than £500. Other authorities, however, had had difficulty in getting replies to advertisements offering £450, and the Committee felt, although they did not like the attitude of the BRITISH MEDICAL JOURNAL or other papers, that there was now more reason for the minimum salary suggested by those journals than on the last occasion. The medical union was perhaps the strongest trade union in the country. Many authorities were offering assistant medical officers considerably in excess of £500. Dr. Vercoe had himself obtained a post as one of six assistants at Willesden at a salary of £710, rising to £840; therefore, £500 did not seem an excessive figure. Councillor Jarmin maintained that they were not necessarily beaten because another authority had failed. He objected to dictation by a medical union as by any other union. The amendment was lost by 15 votes to 9, and the recommendation that £500 be offered was carried and adopted.

SCHOOLS AND INSTITUTIONS FOR THE PHYSICALLY AND MENTALLY DEFECTIVE.

The Board of Education has issued a list[1] of certified schools and institutions for blind, deaf, defective, and epileptic children and young persons in England and Wales. In England there are thirty-three day schools for blind children—of which twenty-one are in London—and twenty-five residential schools. There are twenty-nine day and twenty residential schools for deaf children. London has eighty-four day schools and one residential school for mentally defective children, compared with eighty-eight day and nineteen residential schools in the rest of England. For crippled children there are fifty-seven day and thirteen residential schools, thirty-six of the former being in London. The smallness of the provision hitherto made for delicate children and those suffering from tuberculosis is indicated in Section V; there are only twenty-seven day open-air schools in England and Wales; of these London has six. There are in England six residential schools for epileptic children and two for children suffering from ophthalmia. Wales has only seven day and two residential schools—all situated in Glamorganshire—for the above mentioned classes of children. Twenty-eight institutions in England and one in Wales provide full-time courses of instruction and preparation for a trade for cripples, epileptics, or the blind. One institution—the Worcester College for the Blind, at Whittington—is recognized by the Board of Education for the higher education of the blind. Five schools and classes for blind students, thirteen for deaf students, and two for physically defective students, are recognized under the regulations for technical schools. A list is also given of approved boarding-out committees for blind, deaf, defective, and epileptic children.

Scotland.

EDINBURGH ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL.

AT their meeting on Friday, May 28th, the directors of the Edinburgh Royal Maternity Hospital confirmed the appointment of Dr. R. W. Johnstone, Dr. James Young, and Dr. Hugh S. Davidson to be assistant physicians to the hospital. These are the first appointments made under the new arrangement concluded with the University of Edinburgh for closer relations, especially for teaching purposes. The following are some of the clauses of the agreement which has been reached by the two bodies:

The clinical medical staff shall include the professor of midwifery *ex officio*, three physicians, an extra physician, and four assistant physicians. These physicians and assistant physicians shall be university lecturers. The professor of pathology shall, *ex officio*, be pathologist to the hospital. The

[1] [Cmd. 703.] H.M. Stationery Office. Through any bookseller. Price 9d. net.

[1] List 42. H.M. Stationery Office, 1920 (6d. net).

consulting physician, consulting surgeon, consulting obstetricians, and the consulting ophthalmic surgeon remain as before members of the Medical Board, but are not included in the clinical medical staff; there are also extern assistant physicians appointed in connexion with certain associated dispensaries.

The professor of midwifery shall, up to the age of 65, hold his appointment during his tenure of the chair and shall be a director of the institution.

As vacancies occur among the assistant physicians they shall be duly advertised and the applications of candidates shall be considered by a nomination board composed of four members appointed by the directors of the Royal Maternity Hospital and three members of the Faculty of Medicine of the University. The names selected shall be submitted to the directors of the Maternity Hospital for approval and appointment. Each physician and assistant physician shall be appointed for five years. The renewal of an appointment shall not be automatic, but only take place after due consideration by the directors. No physician or assistant physician shall hold office after the age of 65.

The professor of midwifery shall be chairman of the clinical medical staff, and all proposals in regard to teaching arrangements in the hospital shall be submitted by them through him for approval to the Faculty of Medicine and the directors of the Maternity Hospital.

The clinics to students shall be limited as to numbers, and shall be compulsory and recognized as an integral part of the university course of midwifery. The clinics shall be open to all registered medical students on payment of such fees as may be fixed by the directors after consultation with the University Court.

The professor of midwifery, besides having the general direction of the hospital and being responsible for the teaching in the first quarter, shall have the right of teaching in any of the other three quarters, the details to be arranged in consultation with the clinical medical staff.

The names of suitable candidates for the post of house-surgeon shall be selected by the clinical medical staff and submitted to the directors for approval and appointment.

It will be noted that the system by which each physician and assistant physician was in charge of the hospital for one quarter of the year is in the main retained in the new scheme of working the institution; the extra physician, however, who is in charge of the antenatal and venereal diseases departments is on duty all the year round. It may be added that the position of house-surgeon to the antenatal department and to the extension of the hospital is now open to women medical graduates and is at the present time held by one.

"LIBERTON."

The Court of the University of Edinburgh at its meeting on May 17th determined to give the name "Liberton" to the site of 115 acres it has recently acquired to the south of the city. It is understood that whilst it is intended to transfer to the buildings to be erected at Liberton the teaching of advanced chemistry, it has not yet been decided what other subjects (scientific and medical) may be dealt with there; nor has a name been settled on for the buildings themselves, although the fact that His Majesty the King has consented to lay the foundation stone next month seems to suggest possibilities of nomenclature. The Liberton site lies under the lee of Blackford Hill, with the Craigmillar Park golf course looking upon it. It has West Mains Road as a northern and Braid Burn as a southern boundary, and the Braid Hills lie to the west of it. Further to the south is Liberton Tower and Upper Liberton, whilst to the east are the hamlets of Liberton Dams and Nether Liberton, with South Edinburgh reaching out towards and passing between them. To the south-east is Liberton itself, and the lands of Gracemount and St. Catherine's with its famous "balm well."

The new site formed part of the Barony of Liberton, which, in the sixteenth century, belonged to Mr. Clement Little, who, by his gift in 1580 of some three hundred volumes (not an inconsiderable number in those days), founded the library of the university, soon afterwards to be enriched by the collection of the poet, William Drummond, of Hawthornden. This same Clement, "Commissary of Edinburgh," was instrumental in stirring up the town council to begin erecting the college buildings on the site provided for the purpose (Kirk-of-Field) in 1582. So the old buildings and these newest ones at Liberton are linked together by him. There was also William Little, a kinsman of Clement, who was Provost of Edinburgh in 1591; he, too, assisted at the birth of the young university. He was Laird of Over-Liberton, and the family tomb in Greyfriars Churchyard (within a stone's throw of the medical part of the university) is a rather remarkable structure. It is, writes James Grant in his *Old and New Edinburgh* (vol. ii, p. 382):

> a mausoleum composed of a recumbent female figure, with a pillar-supported canopy above her, on which stand four female figures at the several corners; the popular story is that the lady [perhaps the Provost's wife] was poisoned by her four daughters, whose statues were placed over her in eternal remembrance of their wickedness; but the effigies are in reality those of Justice, Charity, Faith, etc. . . . and the object in placing them there was merely ornamental.

The tomb was erected by a great-grandchild in 1683, perhaps because that year marked the first centenary of the university which the Littles had done so much to found. Littles and Little-Gilmours continued at Liberton till recent times, and in one of Kay's *Portraits* (No. xxvi)—that of Dr. John Brown, author of the Brunonian system of medicine—there is a miniature scene in the background representing Mr. John Lamont, surgeon, Lord Bellenden ("playing on the fiddle"), Dr. William Cullen, Dr. Alexander Hamilton, Professor of Midwifery, James Graham (of the Temple of Health and Hymen, Pall Mall), and "Mr. Little of Libberton." This must have been etched about the close of the eighteenth century.

Liberton village was originally Lepertown, and its situation on rising ground, about two and a half miles south-east of the centre of Edinburgh, probably made it a convenient place at which to segregate the sufferers from the dreaded leprosy of the Middle Ages. Possibly also the lepers may have got treatment at the Balm Well of St. Catherine. The late Mr. Charles Green, the medical and law publisher, was much interested in this well, which was situated in his property, and readily welcomed physicians and others desirous of seeing its black oily contents. Hector Boece in his Latin *History of Scotland* (1526) described the well, and John Bellenden (who himself spelled his name also Ballantyne or Ballentyne) translated the description:

> Nocht two milis fra Edinburgh is ane fontane, dedicat to Sanct Katrine, quhair sternis of oulie springis ithandlie with sic aboundance, that, howbeit the samin be gaderit away, it springis incontinent with gret aboundance. This oulie hes ane singulare virtew aganis all maner of cankir and skawis.

There is a most interesting pamphlet on *The Oyly Well* by Matthew Mackail, an apothecary in Edinburgh and afterwards an M.D. of Aberdeen, which was published in 1664. In his "Topographico Spagyricall Description of the Oyly Well, at St. Catharines-Chappel, in the Paroch of Libberton," Mackail says:

> Its profundity equalleth the length of a pike, and is alwaies replet with water; and at the bottom of it there remaineth a great quantity of black oyl in some veins of the earth. . . . His Majesty King James the Sixth, the first Monarch of Great Britain, of blessed memory, had such a great estimation of this rare Well, that when he returned from England, to visit this His ancient Kingdom of Scotland, in anno 1617, he went in person to see it, and ordered that it should be built with stones from the bottom to the top, and that a door and a pair of stairs should be made for it, that men might have the more easie access unto its bottom, for getting of the Oyl. This royal command being obeyed, the Well was adorned and preserved untill the year 1650, when that execrable Regicide and Usurper, Oliver Cromwell, with his rebellious and sacrilegious complices, did invade this Kingdom; and not only deface such rare and ancient monuments of Nature's handwork, but also the Synagogues of the God of Nature.

Mackail has much to say of wells in general and of the "black fatness or Oyl" of St. Catherine's in particular; but the modern reader will scarcely peruse his pamphlet with patience, although he may note that he traced the oil to Parret coal, "being frequent in these parts." Russel Walker, in the *Proceedings of the Society of Antiquaries of Scotland*, in more recent times described *Holy Wells in Scotland*, including, of course, St. Catherine's, and the *Scottish Field* for November, 1918, brought its story quite up to date. "As a balsam or aperient the oil has lost its virtue"; and, as for its origin, "in these matter-of-fact days the appearance of the miraculous oil is attributed to the fact that the well is sunk on the edge of the rich shale field which was operated on by the Clippens Oil Company at Straiton." There is a legend that James IV bathed in the wonder working "oyl" before marching south to Flodden; but if so the balm failed to work wonders for him.

New South Wales.

THE LATE PROFESSOR SIR THOMAS ANDERSON STUART.

SIR THOMAS ANDERSON STUART, Professor of Physiology and Dean of the Faculty of Medicine in the University of Sydney for the last thirty-seven years, and Chairman of the Board of Directors of the Royal Prince Alfred Hospital, Sydney, died on February 29th in his sixty-fifth year. He was born in Dumfries, Scotland, and entered the University of Edinburgh as a student of medicine at the age of 19 years. After a brilliant career he gained the Ettles Scholarship on graduation as M.B., M.Ch., and two years later the university gold medal for his thesis for the degree of M.D. While he was at Edinburgh he was president of the Royal Medical Society, and was also demonstrator and assistant to the professor of physiology. When it was decided to establish a school of medicine at the University of Sydney, Dr. Anderson Stuart was chosen as professor of physiology and anatomy. He arrived in Sydney in the year 1883, and was at once appointed dean of the faculty of medicine; in virtue of that office he was a member of the Senate of the University, and continued to retain that position, being the oldest member of that body at the time of his death. When Professor Stuart arrived the medical school had four students. He designed the present buildings for the medical school, which at the time they were opened (in 1891) were thought to be far in excess of the requirements of the school; they proved to be not large enough for the increasing number of students; additions have been made, and more will be required in the near future. Later Professor Stuart founded the Dental School, and he was responsible for the foundation and erection of the University Dental Hospital. He subsequently took a prominent part in the foundation of the United Dental Hospital, and was its first president.

By virtue of his position as Dean of the Faculty of Medicine Professor Stuart became an *ex officio* member of the Board of Directors of the Royal Prince Alfred Hospital, a position he continued to hold up to the time of his death. He was appointed honorary secretary to the hospital in 1900, and a few months later, on the death of Sir Edward Knox, he became chairman. It is chiefly due to his initiative and wonderful organizing powers that this hospital has developed into the largest general hospital in Australasia. He had a large share in the extension of the nurses' home, the pathological department, and other buildings. He was for a period of four years President of the Board of Health and medical adviser to the Government; he designed the offices and laboratories of the Board of Health, and was the author of important health legislation. He continued to be a member of the Board of Health till his death. In the year 1891 while on a visit to Europe he was appointed by the Governments of New South Wales, South Australia, and New Zealand to proceed to Berlin to investigate and report upon Dr. Koch's work in connexion with the treatment of tuberculosis by tuberculin.

For many years Professor Stuart was associated with the Royal Society of New South Wales, as member of the council, as honorary secretary, as chairman of the medical section, and as president of the society for two years. He also took an active part in public in other directions, such as the Industrial Blind Institution, the Highland Society, and the Zoological Society. He was the first to take steps towards organizing a school for tropical medicine in Australia. This ultimately merged into the Australian Institute of Tropical Medicine. It was largely in connexion with this and other public and philanthropic movements that he received the honour of knighthood in 1914.

Sir Thomas was well known as a man of most active mind and of great force of character, but probably few, if any, realized how fully these characteristics would be manifested during this past year. Some twelve months ago he was found, quite unexpectedly, to be suffering from extensive malignant disease of the peritoneum, and it was not expected that he would live more than a few months. Still he never slackened his work in any direction and continued his lectures at the university up to the end of the last term of 1919. At the end of the session, as it was well known that he would not be able again to meet his students in lectures, he was given a true students' "send off." He still continued to direct the work of the hospital and attended the meetings of the board almost up to the time of his death. One of his closest friends remarked, "His indomitable spirit was simply marvellous—he was a Scotsman in every fibre of his being." He leaves a widow and four sons, two of whom are students in medicine at the university.

The funeral was one of the largest ever seen in Sydney. The hearse was preceded by a long procession of medical students in academic dress, and a very large number of citizens of all classes surrounded the grave in the little cemetery at South Head at the entrance to Sydney Harbour. The service at the graveside was conducted by his old friend the Rev. John Ferguson of St. Stephen's Presbyterian Church, Sydney. The Masonic service followed.

The Senate of the University of Sydney met on March 1st, and after having passed the following resolution, adjourned to March 8th as a mark of respect to the memory of the late Sir Thomas Anderson Stuart:

> The Senate desires to place on record an expression of the sense of the loss sustained by the University through the death of Sir Thomas Anderson Stuart, M.D., LL.D., D.Sc. From the inception of the medical school in 1883—a period of thirty-seven years—he rendered eminent service to the university and to the cause of medical education by his great gifts as a teacher in the chair of physiology, to which anatomy was at first attached, and by his capacity for organization as Dean of the Faculty of Medicine and as a Fellow of the Senate, as a director and president of the Royal Prince Alfred Hospital, and in other public activities.

A similar resolution was passed by the Faculty of Medicine at its meeting on March 22nd.

EXTENSION OF THE RED CROSS FIELDS OF LABOUR.

The Executive Committee of the Red Cross Society in New South Wales has issued a circular setting out the aims of the following objectives of the future activities of the society.

The first is the extension of the voluntary aid detachment movement throughout Australia, and the second is the maintenance and extension of all Red Cross schemes for the benefit of disabled soldiers, sailors, and military nurses. The third object sought is help in providing nurses for soldiers' settlements, which include a large proportion of invalid soldiers. The fourth is to promote national health and mitigate suffering. It is suggested that the attention of the Red Cross country branches might well be directed towards assisting the nearest district or cottage hospital, or, should there be none, any other medical institution, and in giving help to the local bush nurse.

An important point emphasized is that the Red Cross funds at present to the credit of branches, being raised for the benefit of sick and wounded soldiers, sailors, and military nurses, can only be used for this purpose. Funds raised in the future might be devoted to local civilian hospital purposes, with the provision that soldiers and their dependants would have the first claim on Red Cross care and attention.

REFORMATIVE TREATMENT OF SOLDIER PRISONERS.

The State Government of New South Wales has decided not to submit returned soldiers convicted of criminal offences to ordinary methods of gaol punishment. An effort is to be made to restore them to both physical and mental health by a process of segregation and open-air treatment. The Minister of Justice is interesting himself specially in this matter; he recognizes that there are many cases in which offences proved against returned soldiers have, on investigation, been shown to be the direct result of wounds, shell shock or "war neuroses." Such cases of course require to be treated with the greatest possible sympathy, and arrangements are now being made for their segregation in suitable surroundings, and for a treatment which will conduce to their restoration to a normal condition of life. Special attention is to be paid to the physical health of these men, and open-air treatment will be applied in all cases.

Correspondence.

FUTURE PROVISION OF MEDICAL SERVICES.

SIR,—That the medical press has not instantly been inundated by correspondence for or against the recommendations of the Interim Report of the Consultative Council is merely an indication that the profession, taught by experience, is considering the situation. It may be said to be at gaze with the politician who, in the name of philanthropy, is again about to attack both its professional freedom and economic interests.

Remembering the origin of the Medical Benefit Section of the National Insurance Act, few will be surprised at this further extension in the direction of a nationalization of medicine. That it has been long, perhaps always, contemplated, and the means for its accomplishment considered, appears to be shown by the engaging candour of the noble Chairman of the Consultative Council, in his address at the Brussels Congress, reported in the BRITISH MEDICAL JOURNAL of May 29th (p. 743). The State medical service by instalments, almost by stealth, has, to use his own words, taken another step forwards: "As the provision of medical service extends, the Ministry of Health will have increasing control over medical policy, and therefore over the medical profession, and this influence will be enhanced by the power of the purse." Lord Dawson of Penn, foreseeing this result, and unequivocally indicating the means by which it is to be brought about, is, nevertheless, averse to "the centre of gravity of a learned profession" being in a Government department, and believes "vocational representation" will safeguard a profession which, like a nation, he is good enough to say, has need of self-determination. But it seems that the direct election by all qualified practitioners of their representatives to such a committee would not secure a good team whose function it would be to work in harmony with the Minister responsible, and therefore a team of harmonious character must be selected by other means. What a conception of the freedom of a liberal profession! As two souls are said to struggle in the human breast by John Arbuthnot in his *Gnothi Seauton*, two emotions affect one in perusing Lord Dawson's address—amusement and indignation. I verily predict the triumph of amusement, and believe this precious scheme will die, as it deserves to die, amid the laughter of the profession it is intended to harness for its execution.

The medical profession, let it be said without circumlocution, if a useful and beneficent calling, occupying a definite status in a social system, is not organized solely for philanthropic effort on terms disadvantageous to itself. Its members neither claim nor receive any exceptional leniency from those instrumentalities whose function it is to keep the coffers of the State full. They naturally claim the right to make their own terms for their services. That these are arranged, in the vast majority of cases, with every consideration for the patient, will not be denied by any who know the actual facts of the case. The economic position of the profession which was attacked in the Medical Benefit Section of the Insurance Act, although reluctantly improved by the originators on the demand of those who took service under the Act, is still further attacked by the measures contemplated in the scheme sketched by the Consultative Council.

At the recent gathering of an approved society in now classical Leamington, the president referred regretfully to the good old days when the doctor seemed to live for going about and doing good, whereas now, alas! how often does he seem to be influenced by sordid motives! Need I recall the magnanimity with which the proletariat treated their medical servitors in the heyday of power of the benefit societies! For the action taken by the British Medical Association towards those would-be philanthropists, the profession owes it a lasting debt of gratitude. May that debt be renewed and increased in the near future, if it again speaks and acts in defence of the profession as its chief organ, with the more powerful forces with which it is now confronted.

I think I am in accord with what is or was the general policy of the Association when I remark that State medical service, apart from the proper functions of a Public Health Office in surveying and preventing disease, should have as its care the so-called "necessitous classes," however that term be defined and whatever wage limit or income be connoted by it. If this be so, may we not look to it to protect the profession against the further encroachments upon its economic interests now contemplated? We cannot, like Canute, sit on the seashore and order the sea back, but we may unitedly build a breakwater which will add picturesqueness to the impotent if somewhat annoyed ocean, without unduly wetting our own feet. It is to the building of this breakwater that the profession must now devote itself.

The scientific questions, preventive and curative, involved in the exercise of our calling, to which so much attention has been drawn, with, at times, a certain esoteric solemnity by some, have not, in very many cases, the complexity, inscrutability, and urgency which is averred. We have all to study our cult and learn our craft. We have done so in the past, do so now, and shall do so in the future, in the light of corresponding periods. But the picture of a common surgery (a notion now abandoned) or primary collaborative centres, where patients may study not only one another's diseases but also one another's doctors, is one of the amusing and impracticable features in the scheme of the Council.

The scheme itself seems to have been inspired by the ordinary practice of any general hospital. A patient of a certain and admissible social type is referred by a practitioner to a medical or surgical officer at a hospital. He, in his turn, may find it necessary to refer him to a special department, and the patient may even in some cases run the whole gamut of institutional investigation and treatment before he returns to the "periphery" and his own doctor. Such a process is doubtless beyond the financial capacity of many (and for these, arrangements convenient for them can always be made), therefore all citizens, whatever their means, must be brought under the scheme, or, to use the words of the Council, treatment must be made available for all citizens. Practitioners, presumably members of a liberal profession, a moiety of whom may find higher work, are thus to disport themselves with general observation at the "periphery," such as ante-natal and other domestic attentions of a not very exacting order, for the primary centre is not likely to materialize. Their efficiency is therefore certain to decay with a limitation of their responsibility and of the scope of their exertions, and the last state of the visiting apothecary under this scheme promises to be worse than the first, from which, by his own efforts, he had emerged prior to the intrusion of the politician as philanthropist into medicine. The profession, therefore, is scarcely likely to accept the scheme, and it is improbable that even the threat of whole-time officers, so effectual in cowing the practitioner in 1913, will be equally successful in 1920, or at any later date.—I am, etc.,

ALEXANDER BLACKHALL-MORISON.

London, W., June 7th.

AIR-WAY INFECTIONS.

SIR,—Mr. Benians's article on air-way infections, in your issue of May 15th, p. 668, in which stress is laid on the means already provided by the body to prevent the inroads of bacteria, is extremely suggestive. He does not go so far as to suggest in what ways we might improve, or as he says "exploit," these factors, but it is sufficiently clear that we cannot substitute others without due care and consideration. This brings to issue the question whether or not it is advisable to wash out the nasal cavities. In suitable cases, and under proper supervision, for a time at least, this is no doubt advisable, but since the recent outbreaks of influenza this process has become almost epidemic, supported as it has been by semi-official proclamations, and by over-zealous journalism. It requires neither knowledge nor effort of imagination to discover that the nasal cavities are not adapted to the aqueous ablutions used to cleanse the external parts of the body.

I feel confident, from my experience with private patients, that this process of repeatedly washing out the nose often leads to very harmful results. I constantly see cases of chronic mucosal inflammation of the nasal cavities, often associated with severe infective conditions of the sinuses and infective complications of the ears. I ask as a matter of routine whether the patient makes a practice of washing out the nose, and am told, "Oh, yes, once every day." This has happened so frequently of late as to make me feel that this tampering with the nasal cavities has actually

interfered with the normal protective capacities of the nasal mucosa and has led directly to infection. In the light of Mr. Benians's paper, the value of washing out the nose, even when prophylactic measures are urgently indicated, requires very careful consideration. To wash out the nose from the inside by an increase of the normal secretions would no doubt be the ideal method, but even if we cannot do that effectively, surely to remove the normal protective secretions already present is a dangerous proceeding. I should be very much surprised to hear that my experience as regards these nasal and sinus infections is an isolated one.—I am, etc.,

C. H. HAYTON, F.R.C.S.Edin.,
Surgeon in charge Nose Throat and Ear Department, Prince of Wales Hospital, Tottenham.

May 18th.

"VAGASTHENIA."

SIR,—Is Major Watts right in saying that the tachycardia, etc., which follow fright or shock have always been supposed to be due to suppression of vagus control? If so, the supposition seems to have been wrong. Study of the irritable hearts and irritable tempers of war strained and shocked pensioners suggests that the irritability is due, not to a lazy vagus, but to an unusually energetic sympathetic. For what do we find? Rapid pulse, precordial pain, unstable temper, general jumpiness, tremor, and raised blood pressure. The men are in a condition of hypertension, not of hypotension. Often they are difficult patients to handle because of their general jumpiness. Usually they have suffered prolonged strain or terrifying experiences, or both, and more often than not they repeat their experiences night after night in their dreams.

Ingenious physiologists have shown most convincingly that emotions—particularly emotions of fear and rage—are accompanied by increased activity of the suprarenals, with consequent bucking up of the sympathetic nervous system; and observation of the habits of pensioners with D.A.H. suggests that their trouble is due to constant overactivity of the suprarenals.

Three days ago I examined casually in my out-patient room four pensioners with D.A.H., with the following result:

A. Pulse-rate...	... 144	S.B.P....	... 180
B. ,, ,, ...	... 120	,, ...	... 148
C. ,, ,, ...	... 88	,, ...	... 160
D. ,, ,, ...	... 120	,, ...	... 180

They were all young men, and all were very sorry for themselves—with reason.

The term "vagasthenia" is exceedingly ugly, and so should be turned down. Further, it has been coined without any convincing excuse. D.A.H. is a convenient term, and it does convey a certain amount of truth—that the heart is disordered in its action.

Major Watts's suggestion that the unfortunate men with D.A.H. shall be thrown to the psycho-analysts, must be jumped on hard. They deserve well of their country. They have done nothing that justifies us in driving them into the laboratories of those who would tear their souls into small pieces.—I am, etc.,

Walsall, May 22nd. FRANK G. LAYTON.

Obituary.

WE regret to announce the death of Dr. ROBERT EDWARDS, of Carlisle, which took place after a brief illness, on May 26th. Dr. Edwards was a native of Edinburgh, where he graduated M.B. and Ch.B. in 1907. After acting as house-surgeon at the Cumberland Infirmary, the Royal Sea Bathing Hospital at Margate, and the Hospital for Sick Children in Great Ormond Street, he began to practise in Carlisle, where, in 1912, he was appointed honorary radiographer to the infirmary. At the outbreak of war Dr. Edwards replaced Dr. Norman Maclaren and did much useful work as acting assistant surgeon to the institution; subsequently he joined the army and served abroad. He had to return to England in consequence of the failure of his health, and for some time did military orthopaedic work at Liverpool. He was appointed surgeon (with the rank of major) to the hospital at Fusehill, and also acted as orthopaedic surgeon at the Gretna Hospital. It will be remembered that at the Gretna Green railway disaster five years ago Dr. Edwards crept beneath the débris of a burning troop train and, although exposed to grave personal risk, amputated the legs of two soldiers who were pinned beneath one of the burning coaches. Dr. Edwards, who was only 35 years of age, was an accomplished surgeon and was very popular with his professional brethren, his patients, and his many friends. He leaves a widow and two children, with whom deep sympathy is felt.

IT is with feelings of deep regret that we record the death of Dr. WALTER JOSEPH SCHULLER, which occurred suddenly whilst on a visit to an old fellow student at Windlesham. He was just 49 years of age. He received his medical education at the London Hospital, and took the diplomas of L.R.C.P. and M.R.C.S. in 1898; he was a most popular student. Quiet, unassuming, sympathetic, with a fund of dry humour, he possessed all the qualities that go to make the successful practitioner. On the outbreak of the South African war he joined as civil surgeon, and after the war entered on general practice in Cape Town. He returned to England some years later for an operation, necessitated by blood poisoning contracted from a patient. His health was never robust after this, so that he was unable to undertake the responsibilities of a practice of his own, but spent the greater part of his life as locumtenent to his old friends, who knew that Schuller would look after their interests as well as any, and often better than they could themselves.

DR. WILLIAM SAUNDERS, who died suddenly on April 19th, was the son of the late Dr. James Warnes Saunders, and was born in 1853. He was educated at University College, London, taking the M.R.C.S.Eng. and L.S.A.Lond. in 1878. Subsequently he studied at King's College, London, at Birmingham, and at Newcastle-upon-Tyne. He practised at Stockton-on-Tees, Dudley, Wellingborough, and finally at Backworth, Newcastle-on-Tyne, where he was in partnership with his son, Dr. W. E. Roper Saunders. At Dudley he was resident medical officer to the dispensary. He was for many years a member of the British Medical Association. His principal recreations were music and Freemasonry. During the war he served on recruiting and pensions boards, and, although he had been in ill health for about two years, continued his work until January, 1920. He took a keen interest in public health matters.

THE premature death—he was only 43 years old—of Dr. LEONARD DONCASTER, professor of zoology in the University of Liverpool, is a serious loss to science. He was a scholar of King's College, Cambridge, was in the first class of the natural science tripos, Part I, in 1898, and in the second part in 1900 was distinguished in zoology. He took the degree of Sc.D. in 1913. In 1915, when he was superintendent of the University Museum of Zoology, Cambridge, his researches into the Mendelian hypothesis led to his election as F.R.S. From 1906 to 1910 he was lecturer in zoology in the University of Birmingham.

The Services.

INDIAN MEDICAL SERVICE.

REVISED RATES OF PENSION.

A COMMUNIQUÉ issued to the press by the Secretary of State for India announces revised scales of pension for officers of the Indian Army and of the Indian Medical Service. It contains the following references to the Indian Medical Service (except where otherwise stated "rank" means substantive rank):

Revised rates of pension for the Indian Medical Service have also been approved at the following rates: £400 a year after seventeen years' service, and thereafter for successive years £430, £460, £500, £540, £580, £620, £660, £700, £750, and £800.* The maximum (£800) will be admissible after twenty-seven years' service. The additional pensions for administrative officers of the Indian Medical Service will be continued at the existing rates—namely, £125 for a colonel after two years' active service as such

* The rates hereby replaced were: After seventeen years' service £300, and thereafter for successive years £320, £360, £400, £420, £440 £460, £480, £500, £540, £580.

and £250 after four years; £300 for a major-general after one and a half years' active service as such and £350 after three years.

The revised rates will be payable as from April 1st, 1919, to all regular officers who, being otherwise entitled, have rendered satisfactory paid military service during the Great War, including officers who have retired on pension before the war, have been re-employed as officers during the war, and have thereafter reverted to retirement. The pension of the latter officers will be re-assessed on their service prior to original retirement, except in the case of officers serving for increased pension under Indian Army Circulars, 1893, Clause 99. The new rates of pension will not be drawn by officers for any period during which they were re-employed. Unemployed service up to June 30th, but not beyond, will reckon for pension under these rules.

Temporary rank held during the Great War, followed by substantive promotion to that rank, will count as service in the rank towards pension. Service in the temporary rank of Brigadier-General or higher rank will count as service in the rank of Colonel or lower substantive rank held by the officer on retirement. The rules for the grant of Good Service Pensions are not affected by the revision.

Forms of application for revision of pension under the foregoing rules will be sent out as soon as possible. Any officer who comes within the terms specified, who does not receive a form of application within a fortnight of the present date [June 3rd] should address the Secretary, Military Department, Room 157, India Office, S.W.1, on the subject.

The revised rates of pension herein set forth will be subject to alteration, either upwards or downwards, after July 1st, 1924, to an extent not exceeding 20 per cent., according as the cost of living rises or falls, and after July 1st, 1924, a further revision may take place every three years, but in the case of an officer who entered the Indian Army before July 1st, 1920, the pension will not in any case be reduced below that which he would have received under the old scale, service for pension being calculated under the new rules.

Revised rates of leave pay, pay while on duty in Europe, and unemployed pay will be announced shortly. Officers will be free to elect the revised rules or to remain under existing rules, but they must be finally accepted as a whole, that is, it will not be permissible for an officer to elect the existing rates of unemployed pay and the new scale of pensions, or vice versa.

ANNUAL DINNER IN LONDON.

The annual dinner in London of the Indian Medical Service took place on the evening of June 8th, when Major-General G. F. A. Harris, C.S.I., formerly Surgeon-General, Bengal, was in the chair. The officers present were:

Major-Generals: Sir R. Havelock Charles, G.C.V.O., T. Grainger, C.B., P. Hehir, C.B., C.M.G., C.I.E.

Colonels: C. W. Carr-Calthrop, C.B.E., J. Crimmin, V.C., C.B., C.I.E., Sir P. J. Freyer, K.C.B., C. M. Goodbody, C.I.E., D.S.O., D. E. Hughes, G. B. Irvine, C.B., W. H. Ogilvie, C.M.G., J. J. Pratt.

Lieutenant-Colonels: A. Alcock, C.I.E., W. G. P. Alpin, O.B.E., J. Anderson, C.I.E., W. R. Battye, D.S.O., A. T. Bown, R. Bryson, J. T. Calvert, C.I.E., R. H. Castor, D. G. Crawford, C. Duer, R. H. Elliot, F. F. Elwes, S. C. Evans, A. B. Fry, C.I.E., D.S.O., G. H. D. Gimlette, C.I.E., T. A. Granger, C.M.G., H. Greany, A. W. M. Harvey, J. G. Hulbert, C. H. James, C.I.E., S. P. James, J. Lloyd Jones, J. G. Jordan, R. W. Knox, D.S.O., Clayton Lane, S. Little, T. R. Mulroney, R. A. Needham, C.I.E., D.S.O., A. H. Nott, S. Browning Smith, C.M.G., R. F. Standage, R. Steen, T. H. Symons, O.B.E., W. H. Thornhill, J. H. Tull Walsh, Ellacott L. Ward, C.B.E., J. W. Watson, C.I.E., H. G. L. Wortabet, H. R. Woolbert, A. C. Younan.

Majors: W. M. Anderson, C.I.E., A. Cameron, S. Chuckerbutty, R. G. G. Croly, J. Forrest, C. A. Godson, M.C., E. T. Harris, D.S.O., A. H. Napier, E. S. Phipson, M. Purvis, J. J. Robb, W. C. Ross, W. R. J. Scroggie, C.I.E., F. E. Wilson.

Captains: U. J. Bourke, W. B. Keyworth, N. N. G. C. McVean, J. G. B. Shand, H. Stott, O.B.E.

The guests were the Editors of the *British Medical Journal* and of the *Lancet*.

ROYAL NAVAL MEDICAL CLUB.

THE annual dinner of the Royal Navy Medical Club took place at the Trocadero Restaurant on May 28th, 1920, when the Medical Director-General of the Navy, Surgeon Rear Admiral Sir Robert Hill, K.C.M.G., C.B., C.V.O., was in the chair. The guests were Sir George Lenthal Cheatle, K.C.B., C.V.O., and Surgeon Commander E. J. Steegman, O.B.E., R.N.V.R. The following members were present: Surgeon Captain O. W. Andrews, C.B.E.; Surgeon Commander E. L. Atkinson, D.S.O., Surgeon Commander A. R. Bankart, C.V.O., K.H.P., Surgeon Rear Admiral P. W. Bassett-Smith, C.B., C.M.G., Surgeon Commander G. D. Bateman, Surgeon Commander C. T. Baxter, Surgeon Captain C. M. Beadnell, Surgeon Commander K. D. Bell, Surgeon Rear Admiral W. Bett, M.V.O., Surgeon Commander R. St. G. S. Bond, Surgeon Rear Admiral J. Chambers, C.M.G., Surgeon Commander C. J. E. Cock, Surgeon Captain E. C. Cridland, Surgeon Commander F. J. A. Dalton, C.M.G., Surgeon Rear Admiral G. A. Dreaper, Surgeon Commander J. S. Dudding, Surgeon Commander J. H. Fergusson, Surgeon Commander A. F. Fleming, D.S.O., Surgeon Commander A. Gaskell, C.B., O.B.E., Surgeon Captain J. F. Hall, C.M.G., Surgeon Rear Admiral D. T. Hoskyn, Surgeon Commander R. Hughes, Surgeon Commander W. W. Keir, C.M.G., Surgeon Commander H. A. Kellond-Knight, Surgeon Commander M. H. Knapp, Surgeon Commander R. H. McGiffin, O.B.E., Surgeon Rear Admiral Sir D. J. P. McNabb, K.B.E., C.B., Surgeon Lieutenant Commander J. H. B. Martin, Surgeon Commander P. M. May, Surgeon Commander N. S. Meiklejohn, D.S.O., Surgeon Commander J. O'Hea, Surgeon Captain F. W. Parker, O.B.E., Surgeon Commander J. H. Pead, Surgeon Captain E. A. Penfold, D.S.O., Surgeon Commander B. P. Pick, Surgeon Commander S. Roach, Surgeon Commander M. L. B. Rodd, O.B.E., Surgeon Commander R. A. Ross, Surgeon Lieutenant Commander F. L. Smith, Surgeon Captain W. H. S. Stalkartt, Surgeon Lieutenant Commander H. E. R. Stephens, O.B.E., Surgeon Commander J. Stoddart, Surgeon Commander E. Sutton, C.M.G., Surgeon Commander J. A. Thompson, Surgeon Commander A. J. Wernet.

ARMY FEES FOR CIVILIAN DOCTORS.

AN Army Council Instruction lays down that civilian medical practitioners giving professional attendance to soldiers will now be paid day fees ranging from 3s. 9d. to 7s. 9d., according as the distances travelled vary from under one mile to under five miles. Night fees for similar distances will range from 5s. 3d. to 13s. 3d. Extra fees will be allowed for distances over five miles, but the limit for an ordinary visit will be £1.

HONOURS.

FOREIGN DECORATIONS.

THE following decorations have been conferred in recognition of valuable and distinguished services rendered during the war:

By the President of the French Republic.

Order of the Legion of Honour.—Chevalier: Dr. Septimus P. Sunderland. *Médaille d'Honneur avec glaves "en Vermeil":* Colonel Arthur D. Ducat, D.S.O., T.D., A.M.S.(T.F.), Captain Matthew Wallace Paterson, O.B.E., M.C., R.A.M.C.(S.R.), and Captains Richard Payne Pollard, M.C., and David Jobson Scott, O.B.E., M.C., R.A.M.C.(T.F.). *Médaille des Epidémies "en Argent":* Temporary Captain (acting Major) James Robertson Anderson, R.A.M.C.

By the King of Rumania.

Order of the Star of Rumania (with Swords).—Chevalier: Captain Duncan Campbell Lloyd Fitzwilliams, C.M.G., R.A.M.C.(T.F.).

Sir W. R. Smith, M.D., ex-Sheriff of the City of London, has been appointed by the King of the Hellenes a Commander of the Order of George I, and has received from the President of the Chinese Republic the decoration of Second Class, with Grand Cordon, of the Order of the Excellent Crop.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

DIPLOMA OF PSYCHOLOGICAL MEDICINE.

THE dates for the next examination have been fixed as follows: For Part I, October 13th, 14th, and 15th; for Part II, December 1st, 2nd, and 3rd. The examination for Part I will be held in Cambridge; that for Part II in London.

Course of Instruction for the Diploma.

Courses of instruction for both parts will be held in Cambridge from July 19th to August 21st. For Part I Dr. Thacker, Anatomy and Physiology of the Nervous System; Dr. Lowson, Psychology. For Part II Dr. Prideaux, Psychopathology; Dr. Archdale, Diagnosis, Prognosis and Treatment of Mental Disorders.

The fee for the full course is 10 guineas; the course for either part may be taken separately at a fee of 5 guineas.

Entries should be sent to Dr. E. D. Adrian, Trinity College, Cambridge, from whom further information may be obtained.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examinations indicated:

SURGERY.—†G. S. Ashby, *†J. G. Barrie, *M. L. Barst, †C. C. Bennett, †W. H. Cellier, *†M. J. Erdberg, *†A. Keilin, *†J. Kendall, *W. A. O'Connor, *W. H. Summerskill, *†G. V. L. Van Acker.

MEDICINE.—*†L. Burvill Holmes, *†A. R. Crane, *†M. J. Erdberg, †A. G. B. Fenwick, †A. Furniss.

FORENSIC MEDICINE.—L. Burvill Holmes, M. J. Erdberg, H. D. L. Jones.

MIDWIFERY.—M. J. Erdberg, P. N. Gray, G. V. L. Van Acker.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs. G. S. Ashby, J. G. Barrie, C. C. Bennett, M. J. Erdberg, A. G. B. Fenwick, A. Furniss, A. Keilin, and J. Kendall.

Medical News.

A SUM of £165,000 from the bequest of the late Sir William Dunn has been given to the University of Cambridge for the endowment of the institute of biochemistry.

THE Section of Laryngology of the Royal Society of Medicine will hold its second annual summer congress at the house of the society on June 24th and 25th. On the first day a series of papers on cancer of the throat will be read. A collection of pathological specimens and drawings will be on view, and also an exhibition of surgical instruments and drugs. There will be a dinner at the Café Royal on the evening of June 24th.

A MEETING of Old Epsomians interested in the College War Memorial will be held at the offices of the school, 49, Bedford Square, W.C.1, on Thursday, June 24th, at 5 p.m., (1) to discuss the immediate erection of a tablet of commemoration, as it is not possible to begin the chapel rebuilding for some time; (2) to meet the committee specially appointed to collect subscriptions and donations; and (3) to decide on the form which the tablet is to take.

THE Cavendish Lecture and Conversazione of the West London Medico-Chirurgical Society will be held at the Kensington Town Hall on Friday, June 25th. Members desiring tickets for guests are requested to communicate at once with the senior honorary secretary, Dr. J. F. Halls Dally, M.D., M.R.C.P., 93, Harley Street, W.1. Professor Sherrington has chosen "Posture" as the subject of his Cavendish Lecture.

THE first annual dinner of the 48th General Hospital will take place at the Piccadilly Hotel (Adams's Room), London, on June 24th, at 7.30 p.m. Dinner 21s., exclusive of wines. Those who intend to be present are asked to communicate with Dr. B. Holroyd Slater, St. Luke's Hospital, Bradford.

THE Cambridge Medical Graduates' Club will hold its summer dinner at Oddenino's Imperial Restaurant, Regent Street, W., on June 24th, at 7.30 o'clock. The honorary secretary is Mr. R. Davies-Colley, C.M.G., M.Ch., 10, Devonshire Place, W.1.

LECTURES open to students and graduates will be given in the Surgical Unit at the London Hospital Medical College as follows:—On June 16th and 17th Mr. Robert Milne: Bone grafting; on June 23rd, 25th, and 30th Mr. Russell Howard: The acute abdomen; and on July 14th and 21st Mr. Frank Kidd: *B. coli* infection of the kidney.

A COURSE of operative surgery, specially adapted to the needs of general practitioners, will be held at the London School of Clinical Medicine, the Seamen's Hospital, Greenwich, on Mondays, Tuesdays, and Wednesdays, at 2.30 p.m., from June 21st to July 28th. The fee for the course is 10 guineas. Further particulars can be obtained from the Dean, at the Seamen's Hospital, Greenwich.

FLECHSIG celebrated on May 23rd the fiftieth anniversary of his doctorate. The son of a pastor of Zwickau, he was born in 1847 and studied medicine in the University of Leipzig, where he became assistant to the Physiological Institute under Ludwig. In 1882 he took charge of the Leipzig Nervenklinik, of which he is still the head. His reputation as a neurologist is well known, and in celebration of his jubilee is being published the first volume of a new work on the anatomy of the brain and spinal cord.

THE Ministry of Health has issued a circular (96, May 18th, 1920) to which is appended a list of the treatment centres for venereal diseases so far approved by the Ministry under the Public Health (Venereal Diseases) Regulations, 1916. Information is given as to the days and hours of the out-patient clinics, and the days and hours for irrigation of cases of gonorrhoea during the intervals between the clinics. The list should be of particular service in the case of patients who remove from one area to another and need further treatment. There are now, it appears, 157 treatment centres in England and Wales, distributed throughout the cities and principal towns. In London there are 35 centres; Liverpool and Manchester each have 5; Sheffield 4; Birmingham 3, Cardiff, Bristol, and Southampton have 2 each. With the exception of a few special institutions each clinic has accommodation for the treatment of both males and females.

THE Executive Committee of the Women Sanitary Inspectors' and Health Visitors' Association, having affirmed the principle of equal pay for men and women officials working side by side in Public Health Departments, has adopted the following scale of salaries: (*a*) Assistant women inspectors or assistant health visitors £250, rising by £10 per year to £350. (*b*) Women sanitary inspectors, women inspectors of nuisances or health visitors, £350 minimum, rising by £15 per year to £500. (*c*) Chief women inspectors or chief health visitors, £500 minimum. This scale is identical with that adopted by the General Council of the Sanitary Inspectors' Association. In an explanatory memorandum it is claimed that the duties performed by women public health officials are highly specialized, arduous, and exacting; that for their due performance a long and highly technical training is required; and that they are in no way of less value to the community than are those performed by men sanitary inspectors. These claims, it is added, have already been recognized in four London boroughs, where equal salaries are now being paid.

THE Harrogate Corporation has issued a pamphlet giving much interesting information concerning Harrogate and its surroundings, and the Harrogate medicinal baths and waters. New and very full analyses have been made by Professor A. Smithells, F.R.S., of the mineral waters of Harrogate, and a summary of his results is included. An account of Harrogate Spa was given in our issue of July 19th, 1919, p. 78. Grove House, one of the largest residences in the town, is now being converted into a home for clinical investigation, under the auspices of the Harrogate Medical Society.

ACCORDING to the fourteenth annual report of the Trinidad Association for the Prevention and Treatment of Tuberculosis, the mortality from tuberculosis in the island has diminished progressively since 1905; the average annual death rate was 155 per 100,000 during the period 1912–18, as compared with 221 during the previous seven years. In 1918 there were 545 deaths (compared with 505 in 1917) among a population of 379,000; Port of Spain, with only 68,000 inhabitants, contributed 262 deaths. The association earnestly advocates the provision of a sanatorium for treatment of early cases; it also asks for funds to be applied to the home relief of necessitous consumptives in all stages of the disease.

THE Department of Industrial Administration of the College of Technology, Manchester, is publishing through the Manchester University Press a series of pamphlets on economic questions of the day. Those so far issued are reprints of lectures given last autumn, one by Professor J. B. Baillie on *Industrial Unrest*, another by Mr. G. D. H. Cole, M.A., on *Democracy in Industry*, and a third by Mr. Percy Alden, honorary secretary of the British Institute of Social Science, on *Unemployment*. The lectures deal rather with general principles than detail. The causes of trouble and possible remedies are concisely discussed. Mr. Alden's remedies are the regularization of industry to reduce cyclical fluctuations, the creation of fresh industries, the establishment of garden cities, and the enforcement of a universal compulsory scheme of insurance against unemployment.

THE Committee of the Armenian Red Cross and Refugee Fund ask for continued aid by the old subscribers and assistance from new sources. Fresh inroads made by the Turks have compelled many more refugees to leave their temporary resting places and flee to already overcrowded territory at Erivan, where infectious diseases are causing a very heavy mortality. The acceptance of relief is said to be abhorrent to the independent spirit of the Armenian people. As an instance, an American relief worker at Jerusalem reports that all the local communities are receiving doles from the military authorities, helped by private charity; "the exception is the Armenians, every single able-bodied one of whom has found work to do and has become self-supporting." The gross amount received by the fund in the past quarter was £4,564; to each pound a Treasury grant of the same amount is added. £5,000 worth of stores were given for Armenian relief by the British Red Cross Society and the Order of St. John of Jerusalem. The secretary of the fund is Miss Emily J. Robinson, of 35A, Elsham Road, W. 14.

ACCORDING to a tabular statement issued by the Public Health Department of the Ministry of the Interior, there were in Egypt during 1919, among Egyptians 833 cases of plague with 445 deaths, and among foreigners 44 cases with 28 deaths. In Cairo and Alexandria there were only 5 cases. Cases admitted to hospital comprised 569 cases of bubonic, 13 of septicaemic, and 51 of pneumonic plague. The percentage mortality among hospital cases was 40.06, as compared with 32.22 and 40.64, in 1918 and 1917 respectively.

MR. WILLIAM HEINEMANN will shortly publish *Venereal Diseases: their Clinical Aspect and Treatment*, by Mr. J. E. R. McDonagh.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

As, owing to printing difficulties, the JOURNAL must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*: telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

RETIRED PAY inquires as to how his income will be assessed for 1920–21; the income is as follows: Army pension £765, investment income £110, leasehold house £68, an uncertain sum for work under the Pensions Ministry, say £100 after deducting expenses; total £1,043.

*** The earned income, after deduction of the 10 per cent. allowance, amounts to £778 10s.—that is, £765+£100−£86 10s.—and the investment income to £110+£68, therefore the total assessable income is £956 10s. From this he is entitled to deduct £225, allowance for self and wife, leaving chargeable to tax £731 10s., of which £225 will be chargeable at 3s. and the balance, £506 10s., at 6s.; the allowance for life assurance at 3s. or 4s. 6d., according to the date of the policy, provides a deduction from the tax so calculated.

C. H. S. purchased a practice in 1919, paying for it in two instalments. Can he deduct as an expense the second instalment, which, of course, was paid after C. H. S. had commenced his practice work.

*** No; the second instalment, like the first, is a payment of a capital nature for the purchase of the practice, and is not an expense incurred in conducting the practice. The payment is not assessable as income in the hands of the recipient or deductible as a payment in the accounts of the payer.

C. F. M. inquires as to the different rates of income tax for the R.A.M.C. and the ordinary civilian rates.

*** A whole-time medical practitioner is entitled to the special service rate only on that portion of his income which he receives for distinctively military work. The actual rates would depend on the amount of total income; if that amount is between £1,000 and £1,500 the rates for 1919–20 would be 2s. 3d. and 3s. 9d. for military and civil earnings respectively.

LETTERS, NOTES, ETC.

RATS AND PLAGUE.

LIEUT.-COLONEL R. COBB, I.M.S. (ret.), sends us a note with reference to the passages in the Book of Samuel, where models of swellings and golden images of rats are described, as it is believed, in relation to plague. Sir James Cantlie is reported to have said in a recent lecture, that when he was at Hong Kong six-and-twenty years ago a clergyman drew his attention to the passages, and suggested that rats were the cause of plague. Colonel Cobb states that on Sunday, April 19th, 1896, he heard 1 Samuel, chapter vi, read as the first lesson in Calcutta Cathedral; his attention was arrested by the mention of the great destruction caused by "emrods," which was then translated in the margin of the Bible as "haemmorrhoids," but it is now given as "tumours." A further study of the history of the plague in other countries supplied several examples of the association of rats and plague, which was especially interesting later, when plague appeared in Calcutta. "In October, 1896," Lieut.-Colonel Cobb continues, "I was asked by Dr. Simpson to see a case in consultation which proved to be plague. On leaving the patient's room I saw, on the stairs, a sickly, mangy and dazed looking rat. My mind being full of the connexion between rats and the plague, I suggested to Dr. Simpson to take the animal to his Municipal Laboratory. Dr. Simpson not only demonstrated the presence of plague diplo-bacteria in its body, but subsequently made successful cultures of the organism. Dr. Simpson informed me that rats had been found dead in large numbers in Calcutta, especially in the vicinity of the grain shops. Measures were then taken to destroy the rats, which were now proved to be carriers of the disease, and since then rat destruction has been the main factor in the prevention of the spread of plague."

INFECTION IN PNEUMONIA.

DR. J. M. DUNCAN SCOTT (Cambridge) writes, in reply to "H. G.," April 17th (p. 550), who asked for authenticated examples, dating before 1914, of several persons under one roof contracting pneumonia in the manner which has recently become common:

I cannot give specific cases, as the records are inaccessible, but such examples as he desires were fairly frequent in the native compounds on the Rand before the year he mentions. The cases of pneumonia coming from these native compounds were even then regarded, certainly by some authorities, as probably for the most part infectious. The infectious nature of the disease was then so far recognized that instructions were in force, certainly on one group of mines, that where several cases occurred in one room in a compound, that room was to be closed until disinfection had been carried out, and in the hospitals pneumonia cases were as far as possible isolated in separate wards. The type of disease closely resembled influenzal pneumonia.

VALUE OF LEGUMES IN BERI-BERI.

DR. E. F. WILLS (London Mission Hospital and Leper Home, Siaokan, C. China) writes: In 1917 I was M.O. on a boat carrying 1,700 Chinese coolies to France. The journey took three months. The food was supplied from Hong Kong, and consisted of white polished rice from Saigon, various dried fish, potatoes, and sometimes gourds, when obtainable at ports. When we reached Colombo about the end of May—over three weeks' journey—forty-six coolies showed signs of beri-beri, and were landed. The ship was delayed there two weeks for raiders, and twenty-six were fit to resume the journey. The white rice was changed for red coolie rice, lentils were added to the daily diet, and yeast given to recently recovered cases. The course taken was round the Cape, and Sierra Leone was reached on July 14th. By that time the red rice and lentils were finished, and once more about thirty to forty men showed signs of beri-beri. Arrived at Sierra Leone, I was told that date of arrival at Plymouth was very uncertain because of submarines. Owing to the kindness of a clerk in Messrs. Elder Dempster's, and backed by the General-in-Command, I secured 8,000 lb. of dried legumes in the stores. They were from America. For the next two weeks we had to continue white rice, but added peas, or beans, or lentils at every meal. When Plymouth was reached on July 30th there was no sign left of beri-beri. A previous ship that did the same journey but failed to secure legumes registered over 20 deaths from beri-beri; a second boat had 17, I think. The legumes we used were simply boiled and served in gravy.

FOOD AND DISEASE.

DR. JOHN HADDON (Denholm, Hawick) writes: Mr. Rowlands's lecture on gall stones is to me most interesting and instructive and clears up many cases that I met with in practice long ago; but what I would like to call attention to is the fact that Case I is that of a medical man who kept a note of his symptoms. If that practice were followed by all medical men, what progress would be made! It was by watching my own symptoms and trying to find out their primary cause that I discovered that food is the chief cause of disease. It is the most difficult subject I ever tackled; there are so many conjunct causes, as Sydenham knew. But let any doctor who has any chronic ailment watch his symptoms and note his food and he will soon become convinced of the truth of my statement.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 34, 35, 36, 37, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 32, 33, and 34.

THE appointment of certifying factory surgeon at Liverpool, Central (Lancaster) is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	7	6
Each additional line...	0	1	3
Whole single column	6	0	0
Whole page	16	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.